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THE 20TH ANNUAL DRI/McGRAW-HILL SURVEY OF POLLUTION CONTROL EXPENDITURES, 1986-88

After cutting pollution control spending two years in a row, U.S. business plans to pare its commitment even further in 1987: according to DRI's latest survey results, the 9.7% drop in 1986 will be followed by a 1.8% dip in 1987 (Table I).

While this three-year slide could be viewed as a cyclical trend rather than part of a longer-term erosion (Table V), respondents also noted an opposite intention to boost overall capital budgets 3.3% in 1987. If both projections prove accurate, capital investment in pollution control would slip slightly to 2.2% of the total capital budgets (Table II).

These are some of the key findings of the 20th Annual DRI/McGraw-Hill Survey of Pollution Control Expenditures. The results were tabulated in April and May and drawn from more than 460 companies

Chart 1
Pollution Control Spending by All Businesses
(Billions of dollars)

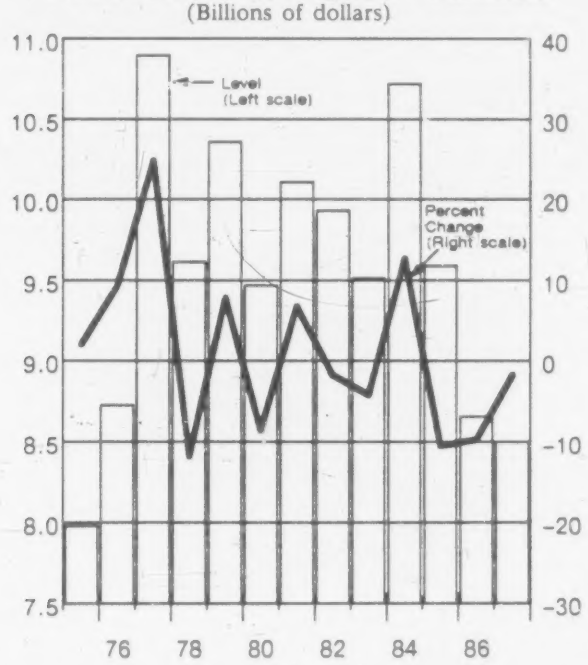
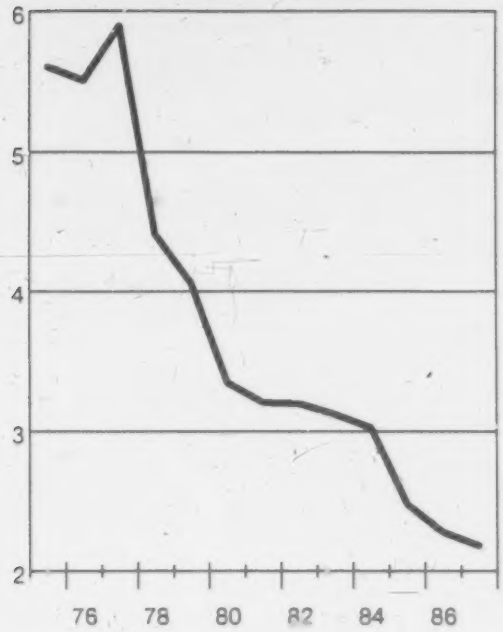


Chart 2
Pollution Control as a Percent of Capital Spending



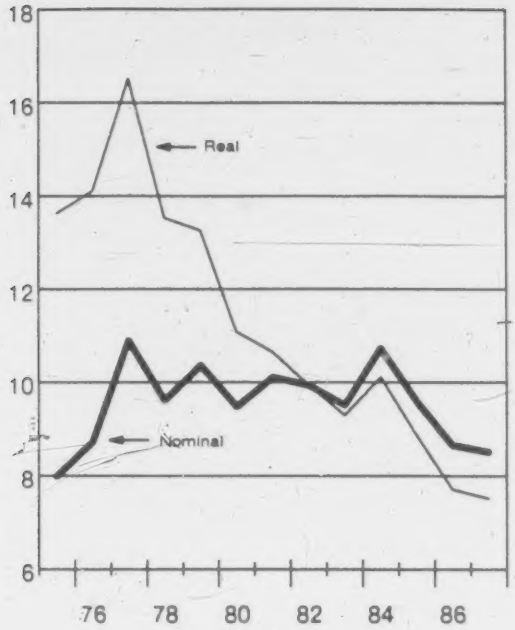
that responded to DRI's overall capital spending survey. Figures in this report have been adjusted to represent spending by all U.S. companies and reflect domestic investment only.

Investment in pollution control throughout the 1980s has failed to push annual corporate budgets to the percent-of-capital spending levels achieved during the 1970s; in fact, that percentage fell each year. Last year's investment level amounted to only a 2.3% share of total capital outlays. To date, the 1980s have been a decade of declining commitment.

After years of neglect and increased evidence of the long-term damage resulting from by-products of American industrial output, public opinion forced a plethora of regulatory remedies on industry during the 1970s. The establishment of federal clean air and water standards resulted in sustained increases in pollution abatement spending, which averaged an annual growth rate of nearly 20% during the decade. Concurrently, investment in antipollution plants and equipment took larger and larger slices of total capital investment, for an annual average of 4.7% that peaked in 1977 at 5.9% (Table VI).

The last recession, coupled with the prospect of continued sluggish economic growth, has turned corporate attention toward regaining a competitive edge. Moreover, the Reagan Administration's distaste for

Chart 3
Real Versus Nominal
Pollution Control Investment
(Billions of dollars)



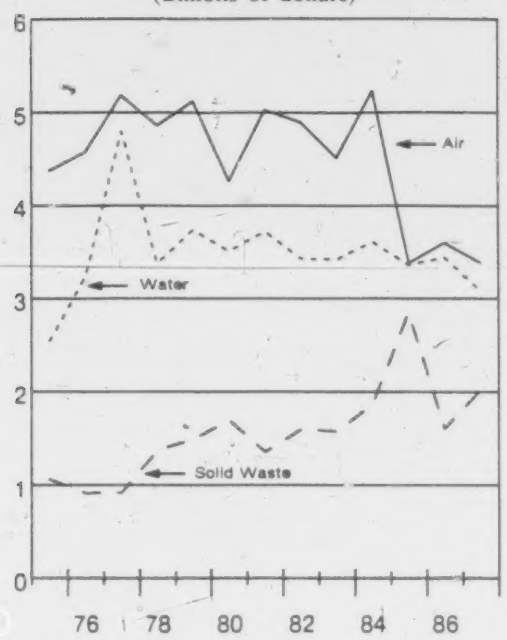
regulations in general and environmental control regulations in particular only adds to the disincentives. As a result, the average annual growth rate for pollution control investment was -2.5% from 1980 to 1986; after adjustment for inflation, the result is a steeper real decline.

This situation may turn around, however. Despite President Reagan's veto, Congress passed the Clean Water Act and could possibly approve some form of acid rain legislation. In addition, public concern over toxic waste will keep the heat on business and spur the government to continue the battle for cleanup and stricter controls. Nevertheless, survey respondents now intend to slice antipollution spending another 5.9% in 1988--significantly below the 0.9% growth forecast for all capital spending. If this cut is realized, pollution control spending would decrease its share of total spending to 2.0% in that year, its lowest share since 1969.

AIR, WATER, AND SOLID WASTE POLLUTION CONTROL

The breakdown in spending on the pollutants targeted for control reveals a continuing shift toward solid waste abatement, the growing priority of the 1980s. Spending on solid waste control surged nearly 52% in 1985, one of the off years for total antipollution investment. As U.S. business played catchup with air and

Chart 4
Air, Water, and Solid Waste Control Expenditures
(Billions of dollars)



water spending in 1986, solid waste investment plunged 44%. In 1987, the spotlight will return to solid waste, with a 26.2% leap in a year marked by overall cutbacks (Table III). The ascent is short-lived, however, with respondents planning another cut of 7.9% in 1988.

Investment in water pollution control is slated for a cut of more than 10% in 1987, to $3.1 billion. Water abatement spending peaked at $4.8 billion in 1977, accounting for 2.6% of total capital spending (Table VIII). Despite the recent passage of clean water legislation, respondents plan further cuts in 1988.

Air pollution control, the focus of so much attention during the late 1960s and 1970s, is now in a somewhat dormant stage, with most spending targeted for maintenance of existing equipment. While the dollar total peaked at $5.2 billion in 1984, air pollution control spending as a percent of total capital investment peaked in 1973-74 at 3.2%. U.S. industry plans a 5.9% cutback this year, followed by another 3.8% decrease in 1988, bringing the share of total capital spending to an all-time low of 0.8%.

INDUSTRY AND SECTOR SPENDING

By industrial sector, 1987 will witness divergent spending patterns for pollution control investment. In 1986, U.S. manufacturing and nonmanufacturing sectors neared a rough parity in dollars spent on

pollution control. The roads to that point came from opposite directions, however: manufacturers cut pollution control spending 25.2% for the year, while nonmanufacturers boosted investment 18.1% in 1986 after slicing nearly 44% off their commitment in 1985. Manufacturing survey respondents expressed plans to boost pollution abatement investment 14.6% this year and another 5.6% in 1988. Nonmanufacturers expressed pessimism, noting cutbacks of 20.5% in 1987 and 24.9% in 1988.

Three industries accounted for more than 53% of all pollution control investment in 1986: chemical makers, petroleum refiners, and electric utilities. Electric utilities, by far the biggest spenders as measured in dollars committed, are showing signs of decline. Although deep cuts in 1985 were followed by a strong surge last year, a cutback of 36% this year will knock electric utilities out of the lead, with another decrease to come in 1988. In response to very optimistic projections of increased demand, electric utilities added significant on-line capacity during the late 1970s and early 1980s. The demand has not materialized, however, and plans for construction of new plants are waning. Consequently, electric utilities are spending heavily to increase the longevity of existing plants, which are free from the strict emission standards required under the Clean Air Act.

Chart 5
Components of Pollution Control Spending as a Percent of Capital Spending

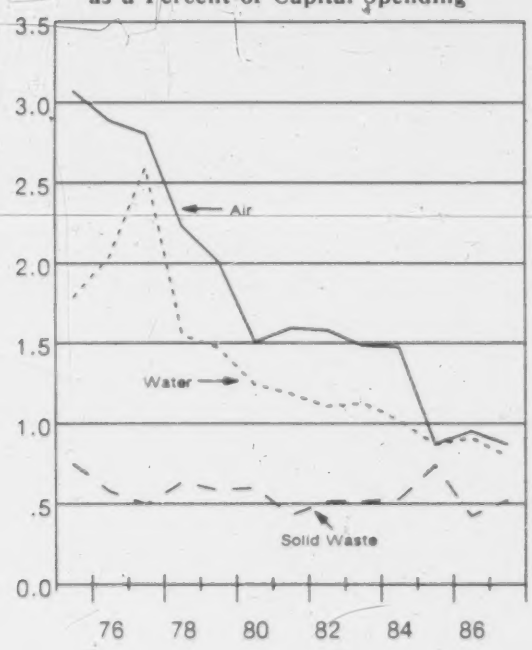
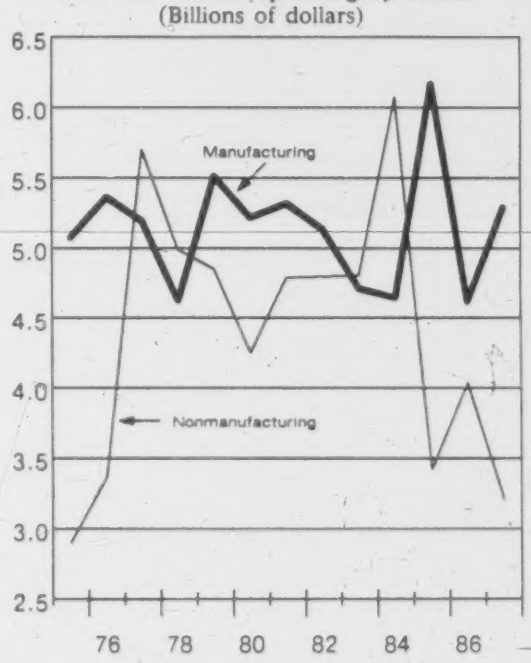


Chart 6
Pollution Control Spending by Sector
(Billions of dollars)



Like electric utilities, petroleum refiners are saddled with overcapacity that has led to a cutback in spending on new plant construction as well as existing facilities. Pollution control investment has suffered as a result, slipping 45.7% in 1986. The picture for 1987 is less bleak, with respondents projecting a slip of only 1.3%. A rebound of nearly 38% is anticipated for 1988, and the recent gains in crude oil prices will undoubtedly reinforce this optimism.

Pollution control investment by chemical producers keeps rising. All economic indicators look strong for this prosperous industry, and steady expansion should continue. Investment in pollution control capital is slated to rise 41.7% in 1987 and another 4.1% in 1988.

Table I
Investment in Pollution Control
(Millions of dollars)

	Level			Percentage Change	
	1986	1987	1988	1987	1988
Iron & Steel	182	276	270	51.8	-2.0
Nonferrous Metals	24	24	28	0.8	18.0
Electrical Machinery	321	213	183	-33.6	-13.9
Non-Electrical Machinery	406	510	634	25.8	24.2
Autos, Trucks & Parts	373	400	229	7.3	-42.7
Aerospace	207	221	90	6.7	-59.2
Fabricated Metals	100	114	93	13.2	-18.4
Instruments	58	94	144	61.0	53.6
Stone, Clay & Glass	145	118	181	-19.0	53.5
Other Durables	171	250	232	45.8	-7.1
TOTAL DURABLES	1,987	2,219	2,084	11.7	-6.1
Chemicals	956	1,354	1,410	41.7	4.1
Paper & Pulp	384	484	467	25.9	-3.5
Rubber & Plastic	169	127	148	-24.4	16.3
Petroleum	1,000	987	1,360	-1.3	37.7
Food & Beverage	42	40	37	-6.4	-6.3
Textiles	53	55	47	3.8	-14.6
Other Nondurables	21	22	32	3.8	43.7
TOTAL NONDURABLES	2,626	3,070	3,501	16.9	14.0
ALL MANUFACTURING	4,613	5,289	5,585	14.6	5.6
Mining	400	392	64	-2.1	-83.6
Railroads	61	63	60	4.0	-5.5
Airlines	162	198	175	22.1	-11.8
Other Transportation	78	73	69	-5.9	-5.1
Electric Utilities	2,638	1,682	1,269	-36.2	-24.6
Gas & Other Utilities	64	24	33	-63.0	38.5
Communications	402	415	448	3.2	8.1
Trade & Services	235	363	292	54.8	-19.6
ALL NONMANUFACTURING	4,039	3,210	2,410	-20.5	-24.9
ALL BUSINESS	8,653	8,499	7,995	-1.8	-5.9

Table II
Pollution Control as a Percent of Capital Spending

	1986	1987	1988
Iron & Steel	5.4	6.9	6.3
Nonferrous Metals	1.2	1.1	1.0
Electrical Machinery	2.3	1.5	1.3
Non-Electrical Machinery	3.0	3.5	4.2
Autos, Trucks & Parts	2.7	3.2	1.8
Aerospace	5.5	5.4	2.3
Fabricated Metals	2.5	3.3	2.6
Instruments	2.4	3.5	5.4
Stone, Clay & Glass	4.6	3.7	5.6
Other Durables	2.0	2.6	2.2
TOTAL DURABLES	2.9	3.1	2.9
Chemicals	5.7	7.4	6.9
Paper & Pulp	4.4	5.3	4.9
Rubber & Plastic	4.3	4.3	4.4
Petroleum	5.5	5.7	7.3
Food & Beverage	0.4	0.4	0.4
Textiles	3.2	3.1	2.5
Other Nondurables	0.2	0.1	0.2
TOTAL NONDURABLES	3.6	4.1	4.6
ALL MANUFACTURING	3.2	3.6	3.7
Mining	3.6	3.5	0.5
Railroads	0.9	0.9	0.8
Airlines	2.6	2.4	2.4
Other Transportation	1.3	1.4	1.4
Electric Utilities	7.8	5.3	4.4
Gas & Other Utilities	0.5	0.2	0.3
Communications	1.2	1.3	1.3
Trade & Services	0.2	0.3	0.2
ALL NONMANUFACTURING	1.7	1.3	1.0
ALL BUSINESS	2.3	2.2	2.0

Table III
Pollution Control Expenditures: Air, Water, and Solid Waste
(Millions of dollars)

	Level								
	1986			1987			1988		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	47	103	32	54	136	86	66	137	67
Nonferrous Metals	18	5	1	22	1	2	28	0	0
Electrical Machinery	111	125	85	25	120	68	36	113	35
Non-Electrical Machinery	69	249	88	134	280	97	88	240	306
Autos, Trucks & Parts	252	74	47	154	93	154	31	52	147
Aerospace	60	106	41	56	92	73	8	79	3
Fabricated Metals	29	35	37	25	58	31	26	32	35
Instruments	20	33	6	32	50	11	36	87	21
Stone, Clay & Glass	89	19	37	65	33	20	123	33	25
Other Durables	51	44	76	115	50	84	95	45	92
TOTAL DURABLES	746	792	449	681	912	626	537	818	730
Chemicals	320	440	196	438	535	381	597	578	235
Paper & Pulp	161	145	79	196	177	111	168	200	99
Rubber & Plastic	105	36	28	77	27	24	88	31	28
Petroleum	459	431	111	427	431	130	656	607	97
Food & Beverage	21	21	0	20	20	0	19	19	0
Textiles	19	23	10	22	11	21	23	15	10
Other Nondurables	0	15	6	0	15	7	0	24	8
TOTAL NONDURABLES	1,085	1,111	430	1,181	1,216	673	1,550	1,473	477
ALL MANUFACTURING	1,831	1,903	879	1,862	2,128	1,299	2,088	2,290	1,207
Mining	178	191	31	181	184	27	57	7	0
Railroads	43	14	4	43	16	4	52	3	5
Airlines	50	63	50	58	83	58	51	73	51
Other Transportation	6	39	33	7	30	37	11	4	55
Electric Utilities	1,310	959	368	1,053	384	245	808	255	205
Gas & Other Utilities	1	63	1	0	24	0	0	33	0
Communications	158	158	87	163	163	89	175	175	97
Trade & Services	26	54	155	20	72	271	17	28	249
ALL NONMANUFACTURING	1,770	1,541	729	1,525	956	730	1,171	577	662
ALL BUSINESS	3,601	3,444	1,608	3,387	3,083	2,029	3,259	2,867	1,869

Table IV
Pollution Control Expenditures: Air, Water, and Solid Waste
(Percent of capital spending)

	1986			1987			1988		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	1.4	3.1	1.0	1.4	3.4	2.1	1.5	3.2	1.6
Nonferrous Metals	0.9	0.3	0.1	1.0	0.0	0.1	1.0	0.0	0.0
Electrical Machinery	0.8	0.9	0.6	0.2	0.8	0.5	0.3	0.8	0.2
Non-Electrical Machinery	0.5	1.8	0.6	0.9	1.9	0.7	0.6	1.6	2.0
Autos, Trucks & Parts	1.8	0.5	0.3	1.2	0.7	1.2	0.2	0.4	1.2
Aerospace	1.6	2.8	1.1	1.4	2.3	1.8	0.2	2.1	0.1
Fabricated Metals	0.7	0.9	0.9	0.7	1.7	0.9	0.7	0.9	1.0
Instruments	0.8	1.3	0.2	1.2	1.9	0.4	1.4	3.3	0.8
Stone, Clay & Glass	2.9	0.6	1.2	2.1	1.0	0.6	3.8	1.0	0.8
Other Durables	0.6	0.5	0.9	1.2	0.5	0.9	0.9	0.4	0.9
TOTAL DURABLES	1.1	1.1	0.7	1.0	1.3	0.9	0.7	1.1	1.0
Chemicals	1.9	2.6	1.2	2.4	2.9	2.1	2.9	2.8	1.1
Paper & Pulp	1.8	1.7	0.9	2.2	1.9	1.2	1.8	2.1	1.0
Rubber & Plastic	2.7	0.9	0.7	2.6	0.9	0.8	2.6	0.9	0.8
Petroleum	2.5	2.4	0.6	2.4	2.5	0.7	3.5	3.3	0.5
Food & Beverage	0.2	0.2	0.0	0.2	0.2	0.0	0.2	0.2	0.0
Textiles	1.2	1.4	0.6	1.3	0.7	1.2	1.2	0.8	0.5
Other Nondurables	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.1
TOTAL NONDURABLES	1.5	1.5	0.6	1.6	1.6	0.9	2.0	1.9	0.6
ALL MANUFACTURING	1.3	1.3	0.6	1.3	1.5	0.9	1.4	1.5	0.8
Mining	1.6	1.7	0.3	1.6	1.6	0.2	0.5	0.1	0.0
Railroads	0.6	0.2	0.1	0.6	0.2	0.1	0.7	0.0	0.1
Airlines	0.8	1.0	0.8	0.7	1.0	0.7	0.7	1.0	0.7
Other Transportation	0.1	0.7	0.6	0.1	0.5	0.7	0.2	0.1	1.1
Electric Utilities	3.9	2.8	1.1	3.3	1.2	0.8	2.8	0.9	0.7
Gas & Other Utilities	0.0	0.5	0.0	0.0	0.2	0.0	0.0	0.3	0.0
Communications	0.5	0.5	0.3	0.5	0.5	0.3	0.5	0.5	0.3
Trade & Services	0.0	0.0	0.1	0.0	0.1	0.2	0.0	0.0	0.2
ALL NONMANUFACTURING	0.7	0.7	0.3	0.6	0.4	0.3	0.5	0.2	0.3
ALL BUSINESS	0.9	0.9	0.4	0.9	0.8	0.5	0.8	0.7	0.5

Table V
Historical Pollution Control Expenditures
(Millions of dollars)

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Iron & Steel	481	450	638	526	452	314	192	184	157	182
Nonferrous Metals	377	175	125	168	169	153	154	181	167	24
Electrical Machinery	125	200	219	195	137	242	114	161	449	321
Non-Electrical Machinery	419	289	224	194	369	202	419	385	336	406
Autos, Trucks & Parts	221	309	700	694	147	16	73	246	439	373
Aerospace	36	51	30	18	71	68	55	111	159	207
Fabricated Metals	142	153	123	113	69	52	107	144	136	100
Instruments	41	65	95	73	128	96	58	85	77	58
Stone, Clay & Glass	168	268	144	199	170	90	297	114	150	145
Other Durables	228	278	367	315	479	211	102	167	483	171
TOTAL DURABLES	2,238	2,209	2,664	2,497	2,192	1,445	1,571	1,779	2,551	1,987
Chemicals	772	597	677	884	878	911	635	781	789	956
Paper & Pulp	453	300	414	443	299	291	397	296	576	384
Rubber & Plastic	208	133	153	59	78	97	22	134	139	169
Petroleum	981	711	1,082	822	1,325	1,267	1,365	1,404	1,842	1,000
Food & Beverage	297	412	239	221	389	595	241	229	207	42
Textiles	71	103	125	81	81	69	57	21	62	53
Other Nondurables	173	127	156	210	74	457	419	0	0	21
TOTAL NONDURABLES	2,955	2,383	2,846	2,720	3,124	3,687	3,137	2,865	3,615	2,626
ALL MANUFACTURING	5,193	4,622	5,510	5,217	5,317	5,132	4,707	4,644	6,166	4,613
Mining	1,717	1,201	192	224	1,262	722	91	1,180	445	400
Railroads	84	83	99	262	119	229	112	48	21	61
Airlines	37	31	111	83	0	159	9	32	53	162
Electric Utilities	2,464	2,273	3,075	2,795	3,195	3,105	3,876	3,258	1,445	2,638
Gas & Other Utilities	170	75	40	0	0	9	92	52	76	64
Communication & Other Trans.	411	245	251	60	129	155	173	0	199	480
Trade & Services	820	1,082	1,080	828	83	418	452	1,503	1,189	235
ALL NONMANUFACTURING	5,702	4,990	4,848	4,251	4,789	4,797	4,805	6,073	3,421	4,039
ALL BUSINESS	10,895	9,613	10,358	9,468	10,106	9,929	9,512	10,717	9,587	8,653

Table V
(Continued)

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Iron & Steel	114	105	153	167	162	132	147	183	459	638
Nonferrous Metals	44	16	39	95	104	148	220	499	473	289
Electrical Machinery	31	95	52	80	70	79	129	87	129	173
Non-Electrical Machinery	30	61	54	132	107	123	166	210	112	222
Autos, Trucks & Parts	114	53	99	128	162	198	429	455	190	173
Aerospace	13	23	35	25	30	42	81	24	55	48
Fabricated Metals	26	46	47	51	85	104	130	108	211	246
Instruments	6	15	32	30	73	28	32	57	58	62
Stone, Clay & Glass	46	42	66	68	124	128	141	290	294	172
Other Durables	80	94	178	247	149	134	231	345	257	252
TOTAL DURABLES	505	549	755	1,024	1,066	1,116	1,707	2,259	2,239	2,275
Chemicals	92	109	135	165	268	368	425	452	634	907
Paper & Pulp	90	79	147	161	266	339	454	478	641	769
Rubber & Plastic	7	10	9	50	43	60	97	48	58	73
Petroleum	97	159	242	309	469	513	586	507	1,162	751
Food & Beverage	41	22	61	103	127	170	236	566	232	393
Textiles	8	11	14	18	30	28	36	57	76	123
Other Nondurables	61	28	49	104	20	110	91	59	35	64
TOTAL NONDURABLES	395	418	656	911	1,223	1,588	1,914	2,167	2,838	3,086
ALL MANUFACTURING	900	967	1,411	1,935	2,289	2,704	3,621	4,426	5,077	5,360
Mining	55	49	99	107	75	147	254	321	502	526
Railroads	NA	NA	NA	40	29	38	64	69	78	47
Airlines	NA	NA	NA	18	9	46	176	165	21	20
Electric Utilities	146	231	154	401	540	1,074	1,145	1,197	1,542	1,776
Gas & Other Utilities	81	25	130	108	48	43	44	68	43	126
Communication & Other Trans.	0	0	0	0	0	182	330	873	244	291
Trade & Services	0	0	0	134	319	353	456	702	475	580
ALL NONMANUFACTURING	NA	NA	NA	808	1,021	1,882	2,469	3,396	2,904	3,366
ALL BUSINESS	NA	NA	NA	2,743	3,310	4,587	6,090	7,822	7,981	8,727

Table VI
Historical Pollution Control Expenditures
(Percent of total capital spending)

	1967	1968	1969	1970	1971	1972	1973	1974	1975
Iron & Steel	6.0	5.2	8.4	10.3	12.8	12.3	11.7	9.3	14.9
Nonferrous Metals	4.0	1.4	3.7	8.1	10.2	15.3	18.0	28.3	27.6
Electrical Machinery	1.0	3.0	1.6	2.3	2.3	2.8	3.7	2.3	4.2
Non-Electrical Machinery	1.0	2.1	1.5	3.5	3.4	3.8	4.2	4.1	2.3
Autos, Trucks & Parts	4.0	2.0	3.3	4.2	6.7	6.6	11.2	10.6	5.7
Aerospace	1.0	1.9	2.7	2.8	4.8	6.1	10.2	2.0	4.6
Fabricated Metals	2.0	3.4	3.5	4.2	7.1	7.3	7.2	5.6	10.8
Instruments	0.9	2.0	3.5	3.5	9.1	3.2	2.8	4.8	5.5
Stone, Clay & Glass	5.0	4.7	5.9	6.4	13.2	9.6	8.9	17.5	17.6
Other Durables	4.9	5.0	7.0	9.3	6.4	4.8	6.5	9.0	7.5
TOTAL DURABLES	2.8	3.1	3.8	5.2	6.4	6.1	7.5	8.4	8.8
Chemicals	3.0	3.9	4.5	4.9	8.2	10.9	10.2	7.3	8.9
Paper & Pulp	6.0	6.2	9.1	9.3	20.7	23.3	22.8	16.6	21.9
Rubber & Plastic	1.0	1.0	0.8	5.4	5.4	5.8	6.2	3.0	4.8
Petroleum	2.0	3.2	4.6	6.0	9.0	10.7	12.7	7.2	12.8
Food & Beverage	2.0	1.0	2.2	3.1	3.8	5.2	6.3	13.3	5.3
Textiles	1.0	1.7	1.6	2.3	3.3	2.6	3.5	5.4	8.9
Other Nondurables	4.0	1.8	2.8	5.5	1.0	5.0	3.1	2.2	1.3
TOTAL NONDURABLES	2.7	2.9	4.0	5.3	7.3	9.2	9.7	8.4	10.0
ALL MANUFACTURING	2.8	3.0	3.9	5.2	6.8	7.6	8.5	8.4	9.5
Mining	4.0	3.4	5.6	5.3	2.8	5.1	7.7	7.0	8.2
Railroads	NA	NA	NA	1.6	1.2	1.6	2.2	1.9	2.0
Airlines	NA	NA	NA	0.7	0.7	2.4	9.3	9.2	1.4
Electric Utilities	2.0	2.9	1.7	3.8	4.4	7.9	7.6	7.1	9.1
Gas & Other Utilities	4.0	1.0	4.9	4.4	2.0	1.6	1.5	2.2	1.3
Communication & Other Trans.	0.0	0.0	0.0	0.0	0.0	1.2	2.0	4.8	1.4
Trade & Services	0.0	0.0	0.0	0.6	1.3	1.2	1.3	1.8	1.2
ALL NONMANUFACTURING	NA	NA	NA	1.5	1.7	2.8	3.2	3.9	3.3
ALL BUSINESS	NA	NA	NA	3.0	3.6	4.4	5.1	5.6	5.6

Table VI
(Continued)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Iron & Steel	20.4	16.7	17.3	19.9	15.3	13.0	8.3	5.9	5.2	3.8	5.4
Nonferrous Metals	20.4	29.1	12.0	7.6	7.9	6.7	8.1	8.9	8.5	8.9	1.2
Electrical Machinery	4.8	2.7	3.4	2.9	2.0	1.3	2.2	1.0	1.1	2.9	2.3
Non-Electrical Machinery	4.1	6.6	3.9	2.2	1.7	2.7	1.5	3.1	2.5	2.1	3.0
Autos, Trucks & Parts	4.8	3.8	4.3	8.4	7.7	1.5	0.2	1.0	2.2	3.0	2.7
Aerospace	4.7	3.2	2.9	1.1	0.5	2.1	2.0	1.9	3.1	4.6	5.5
Fabricated Metals	11.2	5.8	5.2	3.8	3.4	1.9	1.7	3.8	4.2	3.8	2.5
Instruments	5.5	3.0	4.1	5.4	3.2	5.6	4.1	2.3	2.6	3.0	2.4
Stone, Clay & Glass	9.0	7.3	8.5	3.6	5.0	5.0	3.1	10.7	3.7	4.4	4.6
Other Durables	6.2	5.0	5.1	6.2	4.9	6.8	3.7	2.1	2.8	5.9	2.0
TOTAL DURABLES	8.3	6.8	5.7	5.5	4.5	3.7	2.6	3.0	2.7	3.5	2.9
Chemicals	12.3	10.5	7.7	6.9	7.6	6.7	7.2	4.9	5.1	4.8	5.7
Paper & Pulp	25.7	13.0	7.9	7.9	6.8	4.9	5.2	6.7	4.1	6.7	4.4
Rubber & Plastic	5.7	11.8	5.7	6.2	2.9	3.6	4.5	0.9	4.3	3.6	4.3
Petroleum	7.5	8.3	5.4	7.1	4.2	5.1	4.8	5.9	5.5	6.9	5.5
Food & Beverage	7.3	5.2	6.3	3.3	2.7	4.1	6.8	3.1	2.6	2.0	0.4
Textiles	12.6	6.0	7.9	8.8	5.3	4.9	4.7	3.7	1.1	3.5	3.2
Other Nondurables	2.2	5.1	3.0	2.6	2.8	0.9	5.5	4.5	0.0	0.0	0.2
TOTAL NONDURABLES	9.9	8.5	6.1	6.0	4.8	4.7	5.6	5.0	3.9	4.5	3.6
ALL MANUFACTURING	9.2	7.7	5.9	5.7	4.6	4.2	4.3	4.1	3.3	4.0	3.2
Mining	6.9	17.5	10.7	1.5	1.4	5.9	3.6	0.6	7.0	2.8	3.6
Railroads	1.1	1.8	1.6	1.5	3.7	1.9	4.3	2.3	0.7	0.3	0.9
Airlines	1.8	1.7	1.0	2.7	1.9	0.0	3.5	0.2	0.9	1.1	2.6
Electric Utilities	9.2	10.6	8.7	10.6	9.3	10.0	8.6	10.4	8.8	4.0	7.8
Gas & Other Utilities	3.5	3.7	1.4	0.6	0.0	0.0	0.1	1.2	0.5	0.6	0.5
Communication & Other Trans.	1.5	1.9	1.0	0.9	0.2	0.4	0.5	0.6	0.0	0.5	1.2
Trade & Services	1.3	1.6	1.7	1.5	1.1	0.1	0.5	0.5	1.4	1.0	0.2
ALL NONMANUFACTURING	3.4	4.9	3.6	3.0	2.5	2.5	2.5	2.5	2.8	1.5	1.7
ALL BUSINESS	5.5	5.9	4.4	4.1	3.3	3.2	3.2	3.1	3.0	2.5	2.3

Table VII
Historical Pollution Control Expenditures on Air, Water, and Solid Waste
(Millions of dollars)

	1970		1971		1972		1973		1974	
	Air	Water	Air	Water	Air	Water	Air	Water	Air	Water
Iron & Steel	70	98	83	78	71	61	65	81	106	77
Nonferrous Metals	77	19	77	26	123	25	187	33	344	155
Electrical Machinery	38	42	36	33	37	42	59	70	46	42
Non-Electrical Machinery	91	42	69	38	65	58	91	75	118	92
Autos, Trucks & Parts	85	43	102	61	117	81	237	192	253	202
Aerospace	15	10	22	8	24	18	49	32	16	8
Fabricated Metals	24	27	65	20	64	40	51	80	79	29
Instruments	22	9	30	42	10	18	21	11	29	29
Stone, Clay & Glass	41	27	94	30	80	48	94	48	182	108
Other Durables	106	141	68	82	98	36	156	75	222	123
TOTAL DURABLES	569	455	647	419	688	428	1,011	696	1,395	864
Chemicals	78	88	118	150	159	210	171	254	198	254
Paper & Pulp	62	99	126	140	182	157	295	159	282	196
Rubber & Plastic	31	18	20	23	30	30	70	27	21	27
Petroleum	139	170	250	219	340	173	374	212	352	155
Food & Beverage	47	56	54	74	82	88	123	112	140	425
Textiles	6	12	8	22	13	15	13	22	32	25
Other Nondurables	8	96	12	8	57	53	68	13	38	22
TOTAL NONDURABLES	371	540	587	636	863	725	1,114	800	1,063	1,104
ALL MANUFACTURING	940	994	1,234	1,055	1,551	1,154	2,125	1,496	2,458	1,968
Mining	69	38	35	40	98	49	195	59	202	119
Railroads	30	10	12	17	12	26	32	32	22	47
Airlines	15	3	9	0	43	4	176	0	155	11
Electric Utilities	254	148	319	221	857	218	799	347	725	472
Gas & Other Utilities	74	34	27	22	24	19	23	20	40	28
Communication & Other Trans.	0	0	0	0	61	121	165	165	418	455
Trade & Services	67	67	196	123	206	147	386	70	429	273
ALL NONMANUFACTURING	508	300	598	422	1,299	583	1,775	694	1,991	1,405
ALL BUSINESS	1,448	1,294	1,832	1,477	2,850	1,737	3,900	2,190	4,449	3,373

Table VII
(Continued)

	1975			1976			1977		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	203	176	80	441	194	3	242	187	52
Nonferrous Metals	370	43	60	232	30	27	250	119	8
Electrical Machinery	37	68	25	43	97	32	46	46	32
Non-Electrical Machinery	49	53	10	130	76	16	197	197	25
Autos, Trucks & Parts	67	63	60	108	43	22	76	76	70
Aerospace	26	20	8	21	17	9	16	15	6
Fabricated Metals	98	102	12	32	145	9	96	44	2
Instruments	25	27	6	15	34	14	15	22	4
Stone, Clay & Glass	164	70	60	132	33	8	87	51	30
Other Durables	195	48	14	142	85	24	132	59	37
TOTAL DURABLES	1,234	670	335	1,357	754	166	1,157	815	266
Chemicals	242	306	85	265	545	96	250	463	59
Paper & Pulp	398	234	9	248	404	117	185	216	52
Rubber & Plastic	31	16	11	51	26	1	139	60	9
Petroleum	653	327	182	421	291	40	461	461	59
Food & Beverage	101	105	26	135	167	92	114	149	34
Textiles	25	40	11	24	82	17	31	28	12
Other Nondurables	27	8	0	26	26	12	27	122	24
TOTAL NONDURABLES	1,478	1,036	324	1,171	1,541	374	1,207	1,499	249
ALL MANUFACTURING	2,712	1,706	659	2,527	2,295	538	2,364	2,315	515
Mining	294	135	73	359	107	61	383	1,276	59
Railroads	16	54	8	9	34	4	9	56	19
Airlines	9	11	2	16	3	1	19	13	4
Electric Utilities	1,017	407	119	1,197	425	154	1,650	721	93
Gas & Other Utilities	20	10	13	72	47	7	87	83	0
Communication & Other Trans.	70	105	70	39	194	58	260	130	22
Trade & Services	237	119	119	357	134	89	410	205	205
ALL NONMANUFACTURING	1,662	839	403	2,047	943	375	2,818	2,482	401
ALL BUSINESS	4,374	2,545	1,062	4,575	3,239	913	5,182	4,797	916

Table VII
(Continued)

	1978			1979			1980		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	294	154	3	475	164	0	327	162	38
Nonferrous Metals	140	19	16	59	36	30	98	30	40
Electrical Machinery	88	71	41	60	98	60	78	68	49
Non-Electrical Machinery	141	111	37	81	132	10	68	126	0
Autos, Trucks & Parts	295	7	7	233	233	233	352	171	171
Aerospace	30	12	9	8	13	8	7	7	4
Fabricated Metals	91	41	21	55	35	32	37	67	10
Instruments	40	21	5	35	33	26	36	21	16
Stone, Clay & Glass	136	73	60	80	44	20	115	44	40
Other Durables	131	55	93	118	118	130	174	84	58
TOTAL DURABLES	1,385	563	291	1,206	908	551	1,293	779	426
Chemicals	233	303	62	275	294	108	291	396	198
Paper & Pulp	148	148	4	189	147	79	202	182	59
Rubber & Plastic	100	12	21	84	37	32	10	33	16
Petroleum	303	316	92	594	427	61	372	431	20
Food & Beverage	144	177	92	94	102	44	49	90	82
Textiles	35	64	4	13	95	17	34	28	20
Other Nondurables	38	59	30	66	42	48	75	68	68
TOTAL NONDURABLES	1,001	1,078	304	1,314	1,143	388	1,033	1,226	461
ALL MANUFACTURING	2,386	1,641	595	2,520	2,052	939	2,325	2,005	887
Mining	539	269	393	64	64	64	144	16	64
Railroads	16	52	16	20	66	13	7	106	149
Airlines	19	9	3	66	29	17	30	30	22
Electric Utilities	1,254	941	78	1,886	1,044	145	1,503	1,022	270
Gas & Other Utilities	27	38	11	7	33	0	0	0	0
Communication & Other Trans.	49	172	25	56	167	28	30	30	0
Trade & Services	573	255	255	504	288	288	226	301	301
ALL NONMANUFACTURING	2,476	1,735	780	2,602	1,692	555	1,340	1,506	806
ALL BUSINESS	4,862	3,376	1,375	5,122	3,743	1,493	4,265	3,510	1,693

Table VII
(Continued)

	1981			1982			1983		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	271	160	21	166	144	4	94	88	10
Nonferrous Metals	86	53	30	25	104	25	104	7	43
Electrical Machinery	42	85	11	55	143	44	46	46	23
Non-Electrical Machinery	192	164	14	94	94	13	108	203	108
Autos, Trucks & Parts	49	49	49	8	8	0	29	22	22
Aerospace	24	24	24	20	27	20	15	15	26
Fabricated Metals	11	36	22	12	31	9	34	65	8
Instruments	34	64	30	26	47	24	23	23	13
Stone, Clay & Glass	99	61	10	46	23	20	216	64	17
Other Durables	190	176	113	97	69	46	54	24	24
TOTAL DURABLES	998	872	322	550	690	205	722	555	294
Chemicals	236	459	184	418	329	165	181	259	194
Paper & Pulp	165	128	6	95	123	73	148	154	95
Rubber & Plastic	32	32	13	41	39	17	10	12	0
Petroleum	650	624	52	660	501	106	417	787	162
Food & Beverage	152	161	76	201	201	192	93	125	23
Textiles	32	37	13	34	25	10	25	23	9
Other Nondurables	25	25	25	308	75	75	251	84	84
TOTAL NONDURABLES	1,291	1,465	368	1,756	1,293	638	1,125	1,444	568
ALL MANUFACTURING	2,288	2,338	691	2,306	1,983	843	1,847	1,998	862
Mining	385	578	299	200	281	241	30	46	15
Railroads	50	44	25	37	155	37	10	93	10
Airlines	0	0	0	105	27	27	9	0	0
Electric Utilities	2,269	671	256	2,022	830	251	2,385	1,043	447
Gas & Other Utilities	0	0	0	0	9	0	31	31	31
Communication & Other Trans.	32	97	0	62	62	31	115	29	29
Trade & Services	0	0	83	167	84	167	90	181	181
ALL NONMANUFACTURING	2,736	1,389	664	2,593	1,448	756	2,670	1,422	713
ALL BUSINESS	5,025	3,727	1,354	4,900	3,431	1,599	4,517	3,421	1,574

Table VII
(Continued)

	1984			1985			1986		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	103	81	0	49	87	21	47	103	32
Nonferrous Metals	130	11	40	92	37	37	18	5	1
Electrical Machinery	44	73	44	124	201	124	111	125	85
Non-Electrical Machinery	92	200	92	96	96	144	69	249	88
Autos, Trucks & Parts	90	78	78	219	88	132	252	74	47
Aerospace	29	29	54	55	48	55	60	106	41
Fabricated Metals	62	65	17	46	50	39	29	35	37
Instruments	30	26	30	46	31	0	20	33	6
Stone, Clay & Glass	62	31	22	58	48	44	89	19	37
Other Durables	77	42	48	155	155	172	51	44	76
TOTAL DURABLES	718	637	425	942	841	768	746	792	449
Chemicals	306	276	199	230	329	230	320	440	196
Paper & Pulp	166	86	43	163	223	189	161	145	79
Rubber & Plastic	50	53	31	62	39	39	105	36	28
Petroleum	638	587	179	854	614	374	459	431	111
Food & Beverage	132	71	26	62	83	62	21	21	0
Textiles	17	4	0	53	4	5	19	23	10
Other Nondurables	0	0	0	0	0	0	0	15	6
TOTAL NONDURABLES	1,310	1,077	479	1,425	1,291	899	1,085	1,111	430
ALL MANUFACTURING	2,027	1,713	903	2,367	2,132	1,667	1,831	1,903	879
Mining	590	573	17	191	206	48	178	191	31
Railroads	34	7	7	0	21	0	43	14	4
Airlines	0	0	32	19	19	14	50	63	50
Electric Utilities	2,147	889	222	578	686	181	1,310	959	368
Gas & Other Utilities	0	0	52	0	13	64	1	63	1
Communication & Other Trans.	0	0	0	107	43	43	163	197	113
Trade & Services	429	429	644	119	238	832	26	54	155
ALL NONMANUFACTURING	3,201	1,898	974	1,013	1,226	1,181	1,770	1,541	729
ALL BUSINESS	5,228	3,611	1,878	3,380	3,359	2,848	3,601	3,444	1,608

Table VIII
Historical Pollution Control Expenditures on Air, Water, and Solid Waste
(Percent of capital spending)

	1970		1971		1972		1973		1974	
	Air	Water	Air	Water	Air	Water	Air	Water	Air	Water
Iron & Steel	4.3	3.0	6.6	6.2	6.6	5.7	5.2	6.5	5.4	3.9
Nonferrous Metals	6.5	1.6	7.6	2.6	12.7	2.6	15.3	2.7	19.5	8.8
Electrical Machinery	1.1	1.2	1.2	1.1	1.3	1.5	1.7	2.0	1.2	1.1
Non-Electrical Machinery	2.4	1.1	2.2	1.2	2.0	1.8	2.3	1.9	2.3	1.8
Autos, Trucks & Parts	2.8	1.4	4.2	2.5	3.9	2.7	6.2	5.0	5.9	4.7
Aerospace	1.7	1.1	3.5	1.3	3.5	2.6	6.2	4.0	1.3	0.7
Fabricated Metals	2.0	2.2	5.4	1.7	4.5	2.8	2.8	4.4	4.1	1.5
Instruments	2.5	1.0	3.8	5.3	1.1	2.1	1.8	1.0	2.4	2.4
Stone, Clay & Glass	3.9	2.5	10.0	3.2	6.0	3.6	5.9	3.0	11.0	6.5
Other Durables	4.0	5.3	2.9	3.5	3.5	1.3	4.4	2.1	5.8	3.2
TOTAL DURABLES	2.9	2.3	3.9	2.5	3.8	2.4	4.5	3.1	5.2	3.2
Chemicals	2.3	2.6	3.6	4.6	4.7	6.2	4.1	6.1	3.2	4.1
Paper & Pulp	3.6	5.7	9.8	10.9	12.5	10.8	14.8	8.0	9.8	6.8
Rubber & Plastic	3.4	2.0	2.5	2.9	2.9	2.9	4.5	1.7	1.3	1.7
Petroleum	2.7	3.3	4.8	4.2	7.1	3.6	8.1	4.6	5.0	2.2
Food & Beverage	1.4	1.7	1.6	2.2	2.5	2.7	3.3	3.0	3.3	10.0
Texttiles	0.8	1.5	0.9	2.4	1.2	1.4	1.3	2.2	3.0	2.4
Other Nondurables	0.4	5.1	0.6	0.4	2.6	2.4	2.6	0.5	1.4	0.8
TOTAL NONDURABLES	2.2	3.1	3.5	3.8	5.0	4.2	5.7	4.1	4.1	4.3
ALL MANUFACTURING	2.5	2.7	3.7	3.1	4.4	3.3	5.0	3.5	4.7	3.7
Mining	3.4	1.9	1.3	1.5	3.4	1.7	5.9	1.8	4.4	2.6
Railroads	1.2	0.4	0.5	0.7	0.5	1.1	1.1	1.1	0.6	1.3
Airlines	0.6	0.1	0.7	0.0	2.2	0.2	9.3	0.0	8.6	0.6
Electric Utilities	2.4	1.4	2.6	1.8	6.3	1.6	5.3	2.3	4.3	2.8
Gas & Other Utilities	3.0	1.4	1.1	0.9	0.9	0.7	0.8	0.7	1.3	0.9
Communication & Other Trans.	0.0	0.0	0.0	0.0	0.4	0.8	1.0	1.0	2.3	2.5
Trade & Services	0.3	0.3	0.8	0.5	0.7	0.5	1.1	0.2	1.1	0.7
ALL NONMANUFACTURING	0.9	0.5	1.0	0.7	1.9	0.9	2.3	0.9	2.3	1.6
ALL BUSINESS	1.6	1.4	2.0	1.6	2.8	1.7	3.2	1.8	3.2	2.4

Table VIII
(Continued)

	1975			1976			1977		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	6.6	5.7	2.6	14.1	6.2	0.1	8.4	6.5	1.8
Nonferrous Metals	21.6	2.5	5.5	16.4	2.1	1.9	19.3	9.2	0.6
Electrical Machinery	1.2	2.2	0.8	1.2	2.7	0.9	1.0	1.0	0.7
Non-Electrical Machinery	1.0	1.1	0.2	2.4	1.4	0.3	3.1	3.1	0.4
Autos, Trucks & Parts	2.0	1.9	1.8	3.0	1.2	0.6	1.3	1.3	1.2
Aerospace	2.2	1.7	0.7	2.1	1.7	0.9	1.4	1.3	0.5
Fabricated Metals	5.0	5.2	0.6	4.2	6.6	0.4	3.9	1.8	0.1
Instruments	2.4	2.5	0.6	1.3	3.0	1.2	1.1	1.6	0.3
Stone, Clay & Glass	9.8	4.2	3.6	6.9	1.7	0.4	3.8	2.2	1.3
Other Durables	5.7	1.4	0.4	3.5	2.1	0.6	2.9	1.3	0.8
TOTAL DURABLES	4.9	2.6	1.3	4.9	2.7	0.6	3.5	2.5	0.8
Chemicals	3.4	4.3	1.2	3.6	7.4	1.3	3.4	6.3	0.8
Paper & Pulp	13.6	8.0	0.3	8.3	13.5	3.9	5.3	6.2	1.5
Rubber & Plastic	2.6	1.3	0.9	3.7	1.9	0.1	7.9	3.4	0.5
Petroleum	7.2	3.6	2.0	4.2	2.9	0.4	3.9	3.9	0.5
Food & Beverage	2.3	2.4	0.6	2.5	3.1	1.7	2.0	2,6	0.6
Textiles	2.9	4.7	1.3	2.5	8.4	1.7	2.6	2.4	1.0
Other Nondurables	1.0	0.3	0.0	0.9	0.9	0.4	0.8	3.6	0.7
TOTAL NONDURABLES	5.2	3.7	1.1	3.8	5.0	1.2	3.5	4.3	0.7
ALL MANUFACTURING	5.1	3.2	1.2	4.3	3.9	0.9	3.5	3.4	0.8
Mining	4.8	2.2	1.2	4.7	1.4	0.8	3.9	13.0	0.6
Railroads	0.4	1.4	0.2	0.2	0.8	0.1	0.2	1.2	0.4
Airlines	0.6	0.7	0.1	1.4	0.3	0.1	0.9	0.6	0.2
Electric Utilities	6.0	2.4	0.7	6.2	2.2	0.8	7.1	3.1	0.4
Gas & Other Utilities	0.6	0.3	0.4	2.0	1.3	0.2	1.9	1.8	0.0
Communication & Other Trans.	0.4	0.6	0.4	0.2	1.0	0.3	1.2	0.6	0.1
Trade & Services	0.6	0.3	0.3	0.8	0.3	0.2	0.8	0.4	0.4
ALL NONMANUFACTURING	1.9	0.9	0.5	2.0	0.9	0.4	2.4	2.1	0.3
ALL BUSINESS	3.1	1.8	0.7	2.9	2.0	0.6	2.8	2.6	0.5

Table VIII
(Continued)

	1978			1979			1980		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	11.3	5.9	0.1	14.8	5.1	0.0	9.5	4.7	1.1
Nonferrous Metals	9.6	1.3	1.1	3.6	2.2	1.8	4.6	1.4	1.9
Electrical Machinery	1.5	1.2	0.7	0.8	1.3	0.8	0.8	0.7	0.5
Non-Electrical Machinery	1.9	1.5	0.5	0.8	1.3	0.1	0.6	1.1	0.0
Autos, Trucks & Parts	4.1	0.1	0.1	2.8	2.8	2.8	3.9	1.9	1.9
Aerospace	1.7	0.7	0.5	0.3	0.5	0.3	0.2	0.2	0.1
Fabricated Metals	3.1	1.4	0.7	1.7	1.1	1.0	1.1	2.0	0.3
Instruments	2.5	1.3	0.3	2.0	1.9	1.5	1.6	0.9	0.7
Stone, Clay & Glass	4.3	2.3	1.3	2.0	1.1	0.5	2.9	1.1	1.0
Other Durables	2.4	1.0	1.7	2.0	2.0	2.2	2.7	1.3	0.9
TOTAL DURABLES	3.5	1.4	0.7	2.5	1.9	1.1	2.3	1.4	0.8
Chemicals	3.0	3.9	0.8	2.8	3.0	1.1	2.5	3.4	1.7
Paper & Pulp	3.9	3.9	0.1	3.6	2.8	1.5	3.1	2.8	0.9
Rubber & Plastic	4.3	0.5	0.9	3.4	1.5	1.3	0.5	1.6	0.8
Petroleum	2.3	2.4	0.7	3.9	2.8	0.4	1.9	2.2	0.1
Food & Beverage	2.2	2.7	1.4	1.3	1.4	0.6	0.6	1.1	1.0
Textiles	2.7	4.9	0.3	0.9	6.7	1.2	2.2	1.8	1.3
Other Nondurables	0.9	1.4	0.7	1.1	0.7	0.8	1.0	0.9	0.9
TOTAL NONDURABLES	2.6	2.8	0.8	2.8	2.4	0.8	1.8	2.2	0.8
ALL MANUFACTURING	3.0	2.1	.2	2.6	2.1	1.0	2.1	1.8	0.8
Mining	4.8	2.4	.5	0.5	0.5	0.5	0.9	0.1	0.4
Railroads	0.3	1.0	0.3	0.3	1.0	0.2	0.1	1.5	2.1
Airlines	0.6	0.3	0.1	1.6	0.7	0.4	0.7	0.7	0.5
Electric Utilities	4.8	3.6	0.3	6.5	3.6	0.5	5.0	3.4	0.9
Gas & Other Utilities	0.5	0.7	0.2	0.1	0.5	0.0	0.0	0.0	0.0
Communication & Other Trans.	0.2	0.7	0.1	0.2	0.6	0.1	0.1	0.1	0.0
Trade & Services	0.9	0.4	0.4	0.7	0.4	0.4	0.3	0.4	0.4
ALL NONMANUFACTURING	1.8	1.2	0.6	1.6	1.1	0.3	1.1	0.9	0.5
ALL BUSINESS	2.2	1.6	0.6	2.0	1.5	0.6	1.5	1.2	0.6

Table VIII
(Continued)

	1981			1982			1983		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	7.8	4.6	0.6	4.4	3.8	0.1	2.9	2.7	0.3
Nonferrous Metals	3.4	2.1	1.2	1.3	5.5	1.3	6.0	0.4	2.5
Electrical Machinery	0.4	0.8	0.1	0.5	1.3	0.4	0.4	0.4	0.2
Non-Electrical Machinery	1.4	1.2	0.1	0.7	0.7	0.1	0.8	1.5	0.8
Autos, Trucks & Parts	0.5	0.5	0.5	0.1	0.1	0.0	0.4	0.3	0.3
Aerospace	0.7	0.7	0.7	0.6	0.8	0.6	0.5	0.5	0.9
Fabricated Metals	0.3	1.0	0.6	0.4	1.0	0.3	1.2	2.3	0.3
Instruments	1.5	2.8	1.3	1.1	2.0	1.0	0.9	0.9	0.5
Stone, Clay & Glass	2.9	1.8	0.3	1.6	0.8	0.7	7.8	2.3	0.6
Other Durables	2.7	2.5	1.6	1.7	1.2	0.8	1.1	0.5	0.5
TOTAL DURABLES	1.7	1.5	0.5	1.0	1.2	0.4	1.4	1.0	0.6
Chemicals	1.8	3.5	1.4	3.3	2.6	1.3	1.4	2.0	1.5
Paper & Pulp	2.7	2.1	0.1	1.7	2.2	1.3	2.5	2.6	1.6
Rubber & Plastic	1.5	1.5	0.6	1.9	1.8	0.8	0.4	0.5	0.0
Petroleum	2.5	2.4	0.2	2.5	1.9	0.4	1.8	3.4	0.7
Food & Beverage	1.6	1.7	0.8	2.3	2.3	2.2	1.2	1.6	0.3
Textiles	1.9	2.2	0.8	2.3	1.7	0.7	1.6	1.5	0.6
Other Nondurables	0.3	0.3	0.3	3.7	0.9	0.9	2.7	0.9	0.9
TOTAL NONDURABLES	1.9	2.2	0.6	2.7	2.0	1.0	1.8	2.3	0.9
ALL MANUFACTURING	1.8	1.8	0.5	1.9	1.6	0.7	1.6	1.7	0.7
Mining	1.8	2.7	1.4	1.0	1.4	1.2	0.2	0.3	0.1
Railroads	0.8	0.7	0.4	0.7	2.9	0.7	0.2	1.9	0.2
Airlines	0.0	0.0	0.0	2.3	0.6	0.6	0.2	0.0	0.0
Electric Utilities	7.1	2.1	0.8	5.6	2.3	0.7	6.4	2.8	1.2
Gas & Other Utilities	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.4	0.4
Communication & Other Trans.	0.1	0.3	0.0	0.2	0.2	0.1	0.4	0.1	0.1
Trade & Services	0.0	0.0	0.1	0.2	0.1	0.2	0.1	0.2	0.2
ALL NONMANUFACTURING	1.5	0.7	0.4	1.4	0.8	0.4	1.4	0.8	0.4
ALL BUSINESS	1.6	1.2	0.4	1.6	1.1	0.5	1.5	1.1	0.5

Table VIII
(Continued)

	1984			1985			1986		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	2.9	2.3	0.0	1.2	2.1	0.5	1.4	3.1	1.0
Nonferrous Metals	6.1	0.5	1.9	4.9	2.0	2.0	0.9	0.3	0.1
Electrical Machinery	0.3	0.5	0.3	0.8	1.3	0.8	0.8	0.9	0.6
Non-Electrical Machinery	0.6	1.3	0.6	0.6	0.6	0.9	0.5	1.8	0.6
Autos, Trucks & Parts	0.8	0.7	0.7	1.5	0.6	0.9	1.8	0.5	0.3
Aerospace	0.8	0.8	1.5	1.6	1.4	1.6	1.6	2.8	1.1
Fabricated Metals	1.8	1.9	0.5	1.3	1.4	1.1	0.7	0.9	0.9
Instruments	0.9	0.8	0.9	1.8	1.2	0.0	0.8	1.3	0.2
Stone, Clay & Glass	2.0	1.0	0.7	1.7	1.4	1.3	2.9	0.6	1.2
Other Durables	1.3	0.7	0.8	1.9	1.9	2.1	0.6	0.5	0.9
TOTAL DURABLES	1.1	1.0	0.6	1.3	1.1	1.0	1.1	1.1	0.7
Chemicals	2.0	1.8	1.3	1.4	2.0	1.4	1.9	2.6	1.2
Paper & Pulp	2.3	1.2	0.6	1.9	2.6	2.2	1.8	1.7	0.9
Rubber & Plastic	1.6	1.7	1.0	1.6	1.0	1.0	2.7	0.9	0.7
Petroleum	2.5	2.3	0.7	3.2	2.3	1.4	2.5	2.4	0.6
Food & Beverage	1.5	0.8	0.3	0.6	0.8	0.6	0.2	0.2	0.0
Textiles	0.9	0.2	0.0	3.0	0.2	0.3	1.2	1.4	0.6
Other Nondurables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
TOTAL NONDURABLES	1.8	1.5	0.7	1.8	1.6	1.1	1.5	1.5	0.6
ALL MANUFACTURING	1.5	1.2	0.7	1.5	1.4	1.1	1.3	1.3	0.6
Mining	3.5	3.4	0.1	1.2	1.3	0.3	1.6	1.7	0.3
Railroads	0.5	0.1	0.1	0.0	0.3	0.0	0.6	0.2	0.1
Airlines	0.0	0.0	0.9	0.4	0.4	0.3	0.8	1.0	0.8
Electric Utilities	5.8	2.4	0.6	1.6	1.9	0.5	3.9	2.8	1.1
Gas & Other Utilities	0.0	0.0	0.5	0.0	0.1	0.5	0.0	0.5	0.0
Communication & Other Trans.	0.0	0.0	0.0	0.3	0.1	0.1	0.4	0.5	0.3
Trade & Services	0.4	0.4	0.6	0.1	0.2	0.7	0.0	0.0	0.1
ALL NONMANUFACTURING	1.5	0.9	0.5	0.4	0.5	0.5	0.7	0.7	0.3
ALL BUSINESS	1.5	1.0	0.5	0.9	0.9	0.7	0.9	0.9	0.4

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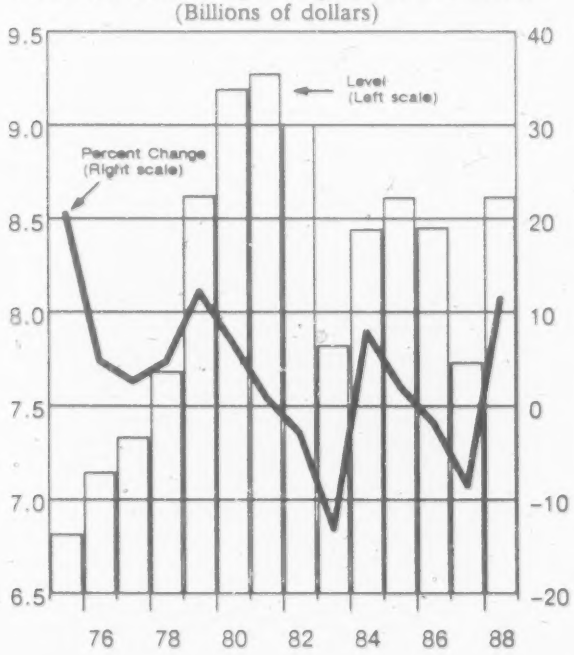
THE 21st ANNUAL DRI/McGRAW-HILL SURVEY OF POLLUTION CONTROL EXPENDITURES, 1987-89

American business appears ready to pull out of its two-year slump in pollution control investment by raising spending on new plant and equipment 11.4% in 1988 (Table I). Another modest 2.1% rise is expected in 1989. Moreover, this stronger spending does not seem to be riding the coattails of higher total capital outlays: total investment in new plant and equipment is slated for an increase of only 9.9% this year. In contrast, a slim 2.4% capital spending uptick in 1987 was paired with an 8.4% cut in pollution abatement investment. If the 1988 projections prove correct, pollution control spending as a percent of total capital spending will rise slightly, to 1.8% (Table II).

Chart 1
Pollution Control Spending by All Businesses
(Billions of dollars)



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These are the key findings of the 21st Annual DRI/McGraw-Hill Survey of Pollution Control Expenditures, 1987-89. The results were tabulated from 366 companies that responded to DRI's overall capital spending survey conducted in April and May. Figures in this report have been adjusted to represent spending by all U.S. companies and reflect domestic investment only. In addition, DRI now benchmarks its pollution control data to the pollution abatement statistics released by the Bureau of Economic Analysis (BEA). Consequently, all historical spending data in this report are derived from the BEA.

After years of neglect and increased evidence of long-term damage from the by-products of American industrial output, public opinion forced a plethora of regulatory remedies on industry in the 1970s. The establishment of federal clean air and water standards resulted in sustained increases in pollution abatement spending, which averaged annual growth of 9.4% between 1973 and 1979 (the earliest period for which data are available from the BEA). In contrast, the average annual growth rate for 1979-88 (assuming the large 1988 estimate) shows a slight decline of 0.01% (Table V).

Chart 2
Real Versus Nominal
Pollution Control Investment
(Billions of dollars)

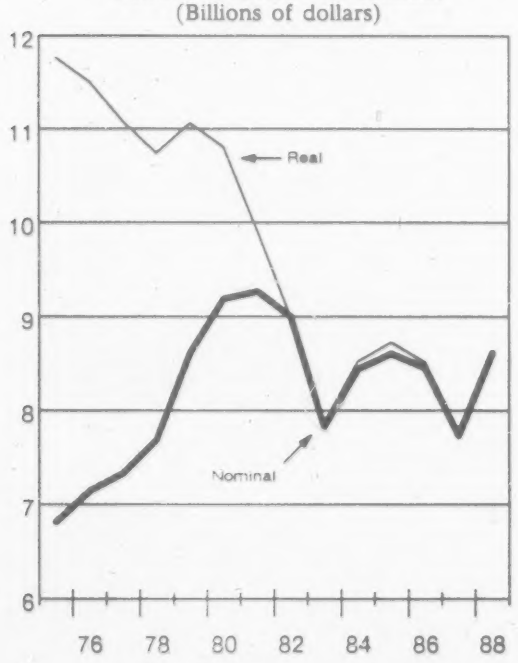
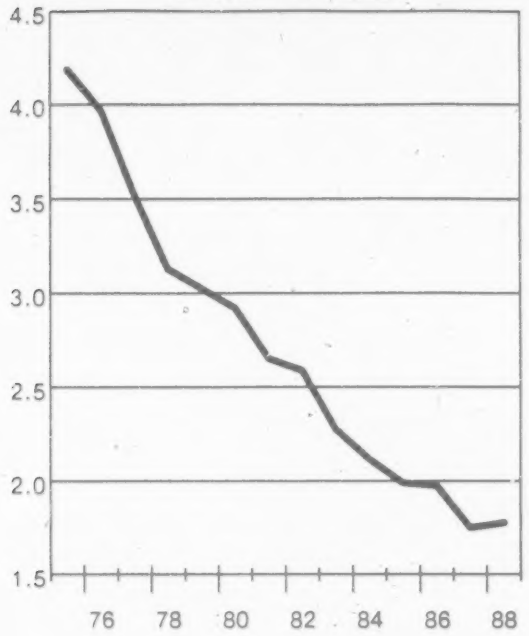


Chart 3
Pollution Control as a Percent of Capital Spending



Even adjustment for inflation, which was high in the 1970s and low in the 1980s, does little to improve the recent trend: after averaging real gains of 0.2% per year in 1973–79, real pollution control investment dropped an average 2.8% in 1979–88.

While this year's comeback is good news, the current level of spending pales beside previous commitments. Throughout the 1980s, pollution control investment as a share of total capital spending undershot the levels achieved in the 1970s, actually falling each year. This share averaged nearly 3.6% in 1973–79, peaking at 4.2% in 1975 (Table VI). In 1988, the estimated share is half the 1973–79 average.

Nonetheless, spending may be due for a prolonged upswing. In recent years, pollution control investment probably resulted from replacement and modernization needs under existing antipollution regulations. A recent spate of reauthorizations for several federal environmental laws, however (including the Safe Drinking Water Act, the Superfund Act, and the Clean Water Act), have tightened compliance requirements. Moreover, mounting evidence on acid rain damage and heightened public outrage over unusable beaches will only intensify the pressure on Congress for further environmental protection requiring increased funding from both the public and private sectors.

AIR, WATER, AND SOLID WASTE POLLUTION ABATEMENT

While overall pollution abatement investment languished in the last decade, spending on solid waste disposal control, a highly popular cause in the 1980s, increased dramatically, if sporadically. Spending in this category surged nearly 26% in 1987, an off year for aggregate antipollution spending by business. While a relatively modest 4.2% increase is expected this year as businesses play catchup with air and water remedies (Table III), the $1.5 billion allocation represents a 67% increase from the 1980 level (Table VII).

With air pollution the focus of much attention in the 1970s, abatement spending grew steadily to a high of $5.1 billion in 1981. Declines have been the rule since then, culminating in a 17% drop in 1987. Investment in air pollution control will rebound in 1988 with an increase of nearly 15%, to $3.9 billion. Nonetheless, its current 0.8% share of total capital outlays is a far cry from the 2.4% garnered in 1975. Businesses plan another 4.7% increase in 1989, the largest of the three pollution abatement categories.

In general, spending on water pollution control has been less subject to extreme swings than the other two categories. After falling 2.4% in 1986 and 10.6% in 1987, water pollution abatement investment will rise

Chart 4
Air, Water, and Solid Waste Control Expenditures
(Billions of dollars)

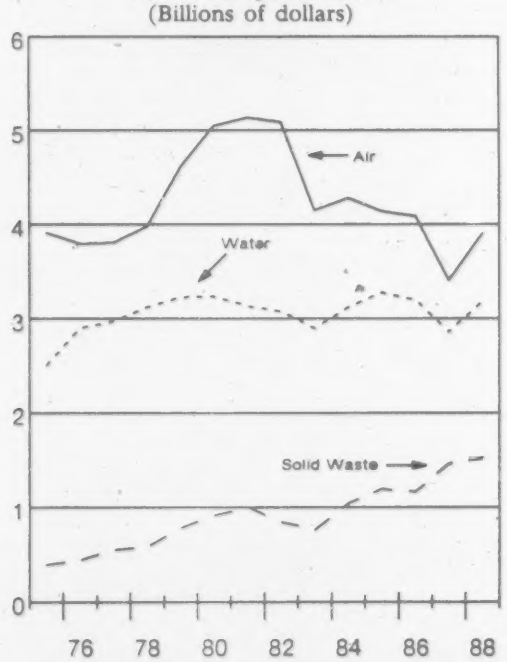
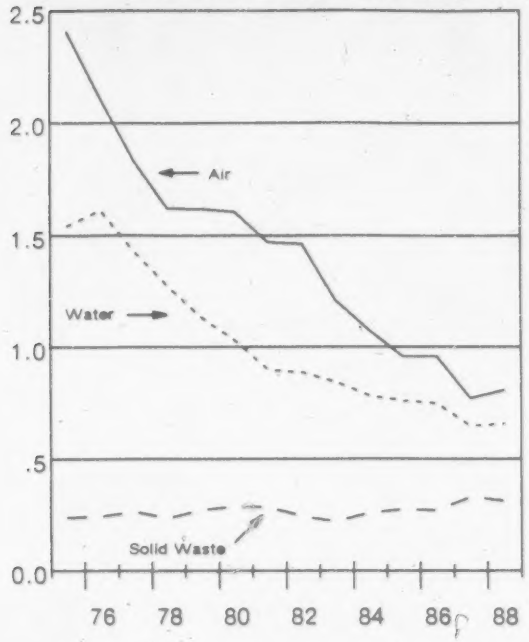


Chart 5
Components of Pollution Control Spending as a Percent of Capital Spending



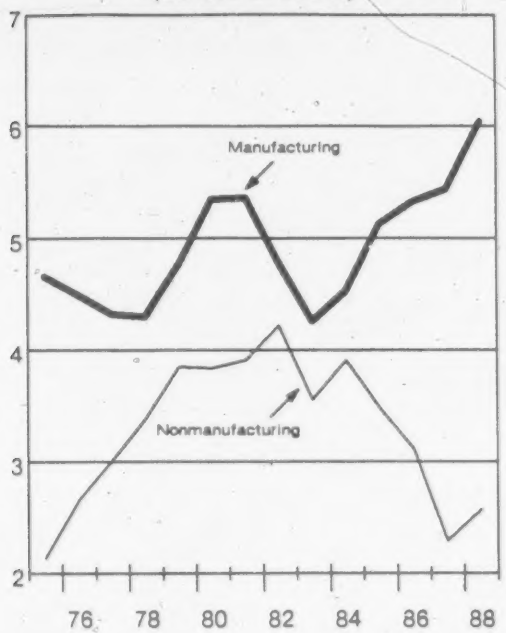
11.4% this year, to $3.2 billion, and flatten out in 1989. Nominal dollar spending in this category reached its historical high of nearly $3.3 billion in 1985. Measured as a percent of capital spending, its relative priority peaked at 1.6% in 1976, well above its current 0.7% share (Tables IV and VIII).

SPENDING BY SECTOR AND INDUSTRY

Manufacturers plan to raise pollution control spending on plant and equipment 11% this year, to $6 billion. Nondurable goods makers are increasing their dollar-volume domination of the sector, expecting an 11.9% rise, to $3.8 billion. If the 5% increase slated for 1989 is realized, nondurable manufacturers will outspend durable goods makers at a rate of nearly two to one. Two of three largest spenders on pollution abatement manufacture nondurables: the petroleum and chemical industries.

Spending by petroleum refiners peaked in 1981 at $1.7 billion and has slid almost constantly since then. The 13.6% push this year to more than $1.4 billion marks a dramatic turnaround and gives the aggregate business totals for pollution control spending a significant boost. The chemical industry is also on the move, citing plans to increase investment levels 14.1%, to $1.2 billion. This would be the industry's fourth consecutive annual gain and would put spending at a level twice that of 1983-84. The paper and pulp industry also notes a vigorous 14% advance in pollution abatement spending, to $752 million.

Chart 6
Pollution Control Spending by Sector
(Billions of dollars)



Within durables, the automotive and the iron and steel industries dominate the sector's aggregate spending level, which is projected to rise 9.5%, to $2.2 billion, in 1988. Iron and steel works report a 39% jump in pollution control budgets, to $514 million. The automotive industry, on the other hand, plans a slight 0.2% cut, to $449 million. This reduction compares favorably with last year's 16.7% fall-off, which ended a three-year rebound. Of the other larger durable spenders, makers of nonferrous metals estimate a rise of nearly 22% and electrical machinery manufacturers report a 2.5% gain.

Nonmanufacturing industries plan an aggregate advance of 12.3%, to $2.6 billion, for this year's pollution control outlays. With electric utilities alone accounting for 75% of this sector's dollars, the 12.5% increase planned by this industry swamps other nonmanufacturing spending trends. Nonetheless, only gas utilities foresee a cutback this year, while mining companies plan an 8.9% increase and the trade and services industries expect a modest 2.9% gain.

Table I
Investment for Pollution Control
(Millions of dollars)

	Level			Percentage Change	
	1987 (a)	1988	1989	1988	1989
Iron & Steel	370	514	393	39.0	-23.6
Nonferrous Metals	180	219	212	21.8	-3.1
Electrical Machinery	220	226	217	2.5	-3.6
Non-Electrical Machinery	100	92	85	-7.7	-7.7
Autos, Trucks & Parts	450	449	446	-0.2	-0.6
Aerospace	50	54	51	8.3	-6.0
Fabricated Metals	70	70	76	0.7	8.1
Stone, Clay & Glass	170	174	173	2.3	-0.5
Other Durables (b)	400	403	396	0.6	-1.6
TOTAL DURABLES	2,010	2,202	2,051	9.5	-6.9
Chemicals	1,050	1,198	1,232	14.1	2.9
Paper & Pulp	660	752	832	14.0	10.6
Rubber & Plastic	70	68	59	-3.4	-12.5
Petroleum	1,250	1,420	1,483	13.6	4.4
Food & Beverage	250	253	271	1.2	7.1
Textiles	50	50	50	0.0	0.0
Other Nondurables	100	97	102	-2.9	4.9
TOTAL NONDURABLES	3,430	3,838	4,028	11.9	5.0
ALL MANUFACTURING	5,440	6,040	6,079	11.0	0.7
Mining	190	207	209	8.9	1.1
Railroads	40	80	80	99.0	0.0
Airlines	10	14	11	37.9	-18.4
Other Transportation	50	50	49	0.4	-1.8
Electric Utilities	1,720	1,935	2,078	12.5	7.4
Gas & Other Utilities	40	39	39	-1.8	0.0
Communications (c)	20	22	23	8.4	4.8
Trade & Services (d)	220	226	224	2.9	-1.1
ALL NONMANUFACTURING	2,290	2,572	2,713	12.3	5.5
ALL BUSINESS	7,730	8,612	8,792	11.4	2.1

a. U.S. Department of Commerce, Bureau of Economic Analysis estimates.
b. Includes instruments.
c. Consists of communication; construction; social services and membership organizations; forestry, fisheries, and agricultural services.
d. Consists of wholesale and retail trade; finance and insurance; personal business services (excl. construction); and real estate.

Table II
Pollution Control as a Percent of Capital Spending

	1987	1988	1989
Iron & Steel.....	8.0	8.6	7.3
Nonferrous Metals.....	8.4	8.7	6.6
Electrical Machinery....	1.4	1.3	1.4
Non-Electrical Machinery	0.7	0.6	0.6
Autos, Trucks & Parts...	3.7	4.0	3.7
Aerospace.....	1.4	1.3	1.7
Fabricated Metals.....	1.7	1.6	1.7
Stone, Clay & Glass.....	5.1	5.2	5.2
Other Durables	3.3	2.9	2.9
TOTAL DURABLES.....	2.8	2.8	2.8
Chemicals.....	6.4	6.1	6.0
Paper & Pulp.....	7.4	6.5	7.0
Rubber & Plastic.....	2.0	1.8	1.5
Petroleum.....	7.4	7.4	6.9
Food & Beverage.....	2.3	1.9	2.0
Textiles.....	2.6	2.4	2.3
Other Nondurables.....	0.6	0.5	0.8
TOTAL NONDURABLES.....	4.6	4.4	4.7
ALL MANUFACTURING.....	3.7	3.7	3.8
Mining.....	1.7	1.5	1.4
Railroads.....	0.7	1.1	1.0
Airlines.....	0.2	0.1	0.1
Other Transportation....	0.8	0.7	0.7
Electric Utilities.....	5.4	6.6	7.3
Gas & Other Utilities...	0.3	0.3	0.3
Communications	0.0	0.0	0.0
Trade & Services	0.1	0.1	0.1
ALL NONMANUFACTURING....	0.8	0.8	0.8
ALL BUSINESS.....	1.7	1.8	1.8

Table III
Pollution Control Expenditures: Air, Water, and Solid Waste
(Millions of dollars)

	Level								
	1987			1988			1989		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel.....	150	190	30	205	265	45	154	205	34
Nonferrous Metals.....	100	60	30	111	76	32	105	75	32
Electrical Machinery....	50	100	70	52	100	74	50	97	70
Non-Electrical Machinery	10	80	10	10	73	10	9	67	9
Autos, Trucks & Parts...	270	100	80	263	102	85	263	101	82
Aerospace.....	10	30	10	10	33	11	11	30	10
Fabricated Metals.....	30	30	10	31	28	11	35	30	12
Stone, Clay & Glass.....	90	60	20	94	60	20	93	60	20
Other Durables	150	190	60	162	202	39	161	198	38
TOTAL DURABLES.....	860	840	320	938	938	326	880	864	307
Chemicals.....	380	470	200	500	509	188	531	512	189
Paper & Pulp.....	330	110	210	358	151	244	401	174	256
Rubber & Plastic.....	30	30	10	32	26	9	25	25	10
Petroleum.....	470	600	180	561	673	186	588	701	194
Food & Beverage.....	70	130	50	72	132	49	77	141	53
Textiles.....	30	10	10	30	10	10	30	10	10
Other Nondurables.....	50	40	10	50	37	10	53	39	10
TOTAL NONDURABLES.....	1,360	1,390	680	1,604	1,538	696	1,704	1,602	722
ALL MANUFACTURING.....	2,210	2,230	990	2,542	2,476	1,022	2,584	2,466	1,029
Mining.....	40	120	20	43	138	26	39	146	25
Railroads.....	10	30	10	16	48	16	16	48	16
Airlines.....	0	10	0	0	14	0	0	11	0
Other Transportation....	10	40	0	10	41	0	8	41	0
Electric Utilities.....	1,020	350	350	1,184	368	383	1,330	387	361
Gas & Other Utilities...	20	20	0	19	20	0	19	20	0
Communications	10	10	0	11	11	0	11	11	0
Trade & Services	80	70	70	81	71	74	81	70	72
ALL NONMANUFACTURING....	1,190	630	460	1,364	709	500	1,505	735	474
ALL BUSINESS.....	3,410	2,860	1,460	3,905	3,185	1,522	4,089	3,200	1,503

Note: U.S. Department of Commerce, Bureau of Economic Analysis estimates for 1987.

Table IV
Pollution Control Expenditures: Air, Water, and Solid Waste
(Percent of capital spending)

	1987			1988			1989		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	3.2	4.1	0.6	3.4	4.4	0.8	2.9	3.8	0.6
Nonferrous Metals	4.7	2.8	1.4	4.4	3.0	1.3	3.3	2.3	1.0
Electrical Machinery	0.3	0.7	0.5	0.3	0.6	0.4	0.3	0.6	0.5
Non-Electrical Machinery	0.1	0.6	0.1	0.1	0.5	0.1	0.1	0.5	0.1
Autos, Trucks & Parts	2.2	0.8	0.7	2.3	0.9	0.8	2.2	0.8	0.7
Aerospace	0.3	0.8	0.3	0.2	0.8	0.3	0.4	1.0	0.3
Fabricated Metals	0.7	0.7	0.2	0.7	0.6	0.2	0.8	0.7	0.3
Stone, Clay & Glass	2.7	1.8	0.6	2.8	1.8	0.6	2.8	1.8	0.6
Other Durables	1.2	1.6	0.5	1.2	1.4	0.3	1.2	1.5	0.3
TOTAL DURABLES	1.2	1.2	0.5	1.2	1.2	0.4	1.2	1.2	0.4
Chemicals	2.3	2.9	1.2	2.6	2.6	1.0	2.6	2.5	0.9
Paper & Pulp	3.7	1.2	2.4	3.1	1.3	2.1	3.4	1.5	2.1
Rubber & Plastic	0.9	0.9	0.3	0.9	0.7	0.2	0.6	0.6	0.2
Petroleum	2.8	3.5	1.1	2.9	3.5	1.0	2.8	3.3	0.9
Food & Beverage	0.6	1.2	0.5	0.5	1.0	0.4	0.6	1.1	0.4
Textiles	1.5	0.5	0.5	1.5	0.5	0.5	1.4	0.5	0.5
Other Nondurables	0.3	0.3	0.1	0.3	0.2	0.1	0.4	0.3	0.1
TOTAL NONDURABLES	1.8	1.9	0.9	1.8	1.8	0.8	2.0	1.9	0.8
ALL MANUFACTURING	1.5	1.5	0.7	1.5	1.5	0.6	1.6	1.5	0.6
Mining	0.4	1.1	0.2	0.3	1.0	0.2	0.3	1.0	0.2
Railroads	0.2	0.5	0.2	0.2	0.7	0.2	0.2	0.6	0.2
Airlines	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.1	0.0
Other Transportation	0.2	0.6	0.0	0.1	0.5	0.0	0.1	0.6	0.0
Electric Utilities	3.2	1.1	1.1	4.0	1.3	1.3	4.7	1.4	1.3
Gas & Other Utilities	0.2	0.2	0.0	0.1	0.1	0.0	0.1	0.1	0.0
Communications	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trade & Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALL NONMANUFACTURING	0.4	0.2	0.2	0.4	0.2	0.2	0.5	0.2	0.1
ALL BUSINESS	0.8	0.6	0.3	0.8	0.7	0.3	0.8	0.7	0.3

Table V
Historical Pollution Control Expenditures
(Millions of dollars)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Iron & Steel	190	250	440	510	520	460	630	630	530	520
Nonferrous Metals	340	370	410	300	230	170	160	200	170	170
Electrical Machinery	120	120	90	90	100	190	210	220	290	290
Non-Electrical Machinery	90	80	90	80	120	100	110	120	110	130
Autos, Trucks & Parts	260	140	100	100	170	220	310	410	380	280
Aerospace	30	30	30	40	30	90	50	50	50	40
Fabricated Metals	90	100	130	80	90	50	60	70	50	40
Stone, Clay & Glass	150	210	220	150	160	250	250	310	190	110
Other Durables	270	240	250	270	230	270	240	230	240	210
TOTAL DURABLES	1,540	1,540	1,760	1,620	1,650	1,740	2,020	2,240	2,010	1,790
Chemicals	420	540	760	880	820	620	620	690	790	680
Paper & Pulp	310	380	470	430	370	330	430	460	450	350
Rubber & Plastic	40	50	50	40	60	60	50	30	50	40
Petroleum	540	750	1,210	1,100	1,040	1,130	1,260	1,540	1,680	1,570
Food & Beverage	250	250	300	330	300	310	260	260	270	260
Textiles	40	40	50	40	40	50	70	80	50	40
Other Nondurables	40	60	60	40	40	60	60	60	60	60
TOTAL NONDURABLES	1,630	2,080	2,900	2,870	2,670	2,570	2,750	3,110	3,350	2,990
ALL MANUFACTURING	3,170	3,620	4,660	4,490	4,320	4,300	4,770	5,350	5,360	4,780
Mining	140	150	140	270	360	430	450	370	320	380
Railroads	30	40	50	60	60	60	70	60	60	80
Airlines	10	10	10	10	10	10	10	10	10	10
Other Transportation	20	60	60	60	40	40	40	40	40	30
Electric Utilities	1,300	1,460	1,510	1,860	2,270	2,490	2,940	2,990	3,180	3,440
Gas & Other Utilities	30	40	40	50	30	30	60	60	90	110
Communications	80	60	80	40	40	60	30	60	50	20
Trade & Services	250	210	250	300	210	240	250	250	150	160
ALL NONMANUFACTURING	1,860	2,030	2,140	2,660	3,010	3,380	3,850	3,840	3,910	4,220
ALL BUSINESS	5,030	5,650	6,810	7,140	7,330	7,680	8,620	9,190	9,270	9,000

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Table V (Continued)

	1983	1984	1985	1986
Iron & Steel.....	340	400	610	470
Nonferrous Metals.....	130	210	190	190
Electrical Machinery....	250	180	180	250
Non-Electrical Machinery	130	190	150	100
Autos, Trucks & Parts...	240	300	490	540
Aerospace.....	30	40	30	50
Fabricated Metals.....	40	60	80	90
Stone, Clay & Glass.....	130	130	130	100
Other Durables	160	200	250	260
TOTAL DURABLES.....	1,450	1,710	2,110	2,050
Chemicals.....	610	580	740	980
Paper & Pulp.....	370	540	580	550
Rubber & Plastic.....	40	70	80	80
Petroleum.....	1,460	1,280	1,250	1,280
Food & Beverage.....	240	260	250	270
Textiles.....	40	40	30	30
Other Nondurables.....	60	70	80	90
TOTAL NONDURABLES.....	2,810	2,830	3,020	3,280
ALL MANUFACTURING.....	4,260	4,530	5,130	5,330
Mining.....	260	370	320	250
Railroads.....	40	50	50	40
Airlines.....	0	0	0	10
Other Transportation....	30	20	20	40
Electric Utilities.....	2,970	3,170	2,790	2,440
Gas & Other Utilities...	70	80	70	50
Communications	20	10	20	20
Trade & Services	170	210	210	260
ALL NONMANUFACTURING....	3,560	3,910	3,480	3,120
ALL BUSINESS.....	7,820	8,440	8,610	8,450

Table VI
Historical Pollution Control Expenditures
(Percent of total capital spending)

	1973	1974	1975	1976	1977	1978	1979	1980	1981
Iron & Steel.....	15.2	12.7	14.3	16.3	18.1	17.7	19.6	18.3	15.2
Nonferrous Metals.....	27.8	21.0	23.9	21.2	17.8	11.7	9.7	9.4	6.8
Electrical Machinery....	3.4	3.2	2.9	2.5	2.2	3.2	2.8	2.3	2.7
Non-Electrical Machinery	2.3	1.6	1.9	1.5	1.9	1.3	1.1	1.1	0.8
Autos, Trucks & Parts...	6.8	3.3	3.0	2.8	2.9	3.1	3.7	4.5	3.9
Aerospace.....	3.8	2.5	2.5	3.9	2.6	1.7	1.9	1.4	1.5
Fabricated Metals.....	5.0	5.2	6.6	3.6	3.7	1.7	1.9	2.1	1.4
Stone, Clay & Glass.....	9.5	12.7	13.2	7.8	6.9	7.9	6.3	7.8	5.6
Other Durables	5.7	4.8	5.6	5.2	3.9	3.8	3.1	2.6	2.6
TOTAL DURABLES.....	6.8	5.8	6.9	5.9	5.0	4.4	4.2	4.0	3.4
Chemicals.....	10.1	8.7	10.7	11.9	11.2	8.0	6.3	5.9	6.0
Paper & Pulp.....	15.6	13.2	16.1	14.4	10.6	8.7	8.2	7.1	7.4
Rubber & Plastic.....	2.6	3.1	4.2	2.9	3.4	2.6	2.0	1.5	2.3
Petroleum.....	11.7	10.7	13.3	11.0	8.8	8.6	8.3	7.9	6.5
Food & Beverage.....	6.7	5.9	6.8	6.1	5.2	4.7	3.6	3.2	2.8
Textiles.....	3.9	3.8	5.8	4.1	3.4	3.8	4.9	5.2	3.0
Other Nondurables.....	1.5	2.2	2.2	1.4	1.2	1.4	1.0	0.8	0.7
TOTAL NONDURABLES.....	8.3	8.1	10.3	9.3	7.7	6.6	5.8	5.5	5.0
ALL MANUFACTURING.....	7.5	6.9	8.7	7.7	6.4	5.5	5.0	4.8	4.2
Mining.....	4.2	3.3	2.3	3.5	3.7	3.8	3.5	2.3	1.5
Railroads.....	1.0	1.1	1.3	1.4	1.3	1.2	1.1	0.8	1.0
Airlines.....	0.5	0.6	0.7	0.9	0.5	0.3	0.2	0.2	0.2
Other Transportation....	0.6	1.6	1.3	1.0	0.7	0.8	0.8	0.8	0.7
Electric Utilities.....	8.6	8.7	8.9	9.6	9.8	9.5	10.1	9.9	10.0
Gas & Other Utilities...	1.0	1.3	1.2	1.4	0.7	0.6	0.9	0.8	1.0
Communications	0.4	0.3	0.4	0.2	0.1	0.2	0.1	0.2	0.1
Trade & Services	0.5	0.4	0.5	0.5	0.3	0.3	0.3	0.3	0.1
ALL NONMANUFACTURING....	1.9	1.9	2.0	2.2	2.1	2.0	2.0	1.9	1.8
ALL BUSINESS.....	3.6	3.5	4.2	4.0	3.5	3.1	3.0	2.9	2.7

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Table VI (Continued)

	1982	1983	1984	1985	1986
Iron & Steel.....	13.7	10.5	11.3	14.8	14.1
Nonferrous Metals.....	9.0	7.5	9.9	10.1	9.8
Electrical Machinery....	2.6	2.2	1.2	1.2	1.8
Non-Electrical Machinery	1.0	1.0	1.2	0.9	0.7
Autos, Trucks & Parts...	3.6	3.3	2.7	3.3	3.9
Aerospace.....	1.2	1.0	1.1	0.9	1.3
Fabricated Metals.....	1.3	1.4	1.7	2.2	2.2
Stone, Clay & Glass.....	3.8	4.7	4.2	3.8	3.2
Other Durables	2.6	2.2	2.2	2.3	2.3
TOTAL DURABLES.....	3.2	2.7	2.6	2.9	3.0
Chemicals.....	5.4	4.7	3.8	4.5	5.8
Paper & Pulp.....	6.3	6.2	7.5	6.8	6.3
Rubber & Plastic.....	1.8	1.6	2.3	2.1	2.1
Petroleum.....	5.9	6.3	5.0	4.7	7.1
Food & Beverage.....	3.0	3.1	2.9	2.4	2.5
Textiles.....	2.7	2.6	2.1	1.7	1.8
Other Nondurables.....	0.7	0.6	0.7	0.6	0.6
TOTAL NONDURABLES.....	4.6	4.5	3.9	3.8	4.5
ALL MANUFACTURING.....	4.0	3.7	3.3	3.3	3.7
Mining.....	1.9	1.7	2.2	2.0	2.2
Railroads.....	1.5	0.8	0.7	0.7	0.6
Airlines.....	0.2	0.0	0.0	0.0	0.2
Other Transportation....	0.6	0.6	0.3	0.3	0.7
Electric Utilities.....	9.5	8.0	8.6	7.7	7.2
Gas & Other Utilities...	1.2	0.9	0.8	0.6	0.4
Communications	0.0	0.1	0.0	0.0	0.0
Trade & Services	0.2	0.2	0.2	0.1	0.2
ALL NONMANUFACTURING....	1.9	1.6	1.5	1.2	1.1
ALL BUSINESS.....	2.6	2.3	2.1	2.0	2.0

Table VII
Historical Pollution Control Expenditures on Air, Water, and Solid Waste
(Millions of dollars)

	1973			1974			1975		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	130	60	0	170	70	10	290	150	0
Nonferrous Metals	300	20	10	290	60	20	320	60	30
Electrical Machinery	50	60	10	60	60	0	50	30	10
Non-Electrical Machinery	50	40	10	40	40	10	40	40	10
Autos, Trucks & Parts	120	90	40	70	50	30	40	50	20
Aerospace	20	20	0	20	10	0	20	10	0
Fabricated Metals	50	30	0	70	20	0	70	60	0
Stone, Clay & Glass	130	20	0	190	20	0	190	30	0
Other Durables	200	60	10	140	70	20	150	80	10
TOTAL DURABLES	1,050	400	80	1,050	400	90	1,170	510	80
Chemicals	180	220	20	230	280	30	290	440	30
Paper & Pulp	170	120	10	240	120	10	260	200	20
Rubber & Plastic	20	20	0	30	20	0	30	20	0
Petroleum	310	180	50	390	280	80	670	480	60
Food & Beverage	90	130	20	80	150	20	100	180	20
Textiles	10	30	0	20	20	0	30	20	0
Other Nondurables	20	10	0	40	10	10	30	20	10
TOTAL NONDURABLES	810	710	110	1,040	890	150	1,410	1,350	140
ALL MANUFACTURING	1,870	1,120	190	2,090	1,290	240	2,580	1,860	220
Mining	60	70	10	70	60	10	60	60	20
Railroads	10	20	10	20	20	0	20	80	0
Airlines	10	0	0	10	0	0	0	0	0
Other Transportation	10	10	0	20	30	10	20	30	10
Electric Utilities	810	410	70	950	430	80	1,030	400	80
Gas & Other Utilities	10	20	0	20	20	0	10	30	0
Communications	70	10	0	50	10	0	50	20	10
Trade & Services	120	90	40	110	60	50	140	80	40
ALL NONMANUFACTURING	1,100	620	140	1,240	630	160	1,330	650	160
ALL BUSINESS	2,968	1,736	330	3,328	1,916	400	3,914	2,508	390

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Table VII (Continued)

	1976			1977			1978		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	310	200	0	310	200	10	310	140	10
Nonferrous Metals	240	50	10	160	60	10	130	30	10
Electrical Machinery	40	40	0	40	50	10	40	120	20
Non-Electrical Machinery	40	30	10	60	50	0	50	40	10
Autos, Trucks & Parts	30	50	30	50	70	40	100	80	40
Aerospace	20	10	0	10	10	0	10	10	10
Fabricated Metals	40	30	0	40	50	0	20	20	0
Stone, Clay & Glass	110	30	10	110	40	10	150	80	20
Other Durables	170	110	10	130	110	20	200	80	10
TOTAL DURABLES	1,000	550	70	910	640	100	1,010	600	130
Chemicals	330	490	50	300	480	50	270	320	40
Paper & Pulp	170	250	10	130	210	30	140	160	30
Rubber & Plastic	20	20	0	40	20	10	40	10	0
Petroleum	490	500	110	470	500	80	530	510	90
Food & Beverage	110	190	20	100	180	20	130	160	20
Textiles	10	30	0	20	20	0	80	20	10
Other Nondurables	20	10	0	20	10	0	10	40	10
TOTAL NONDURABLES	1,170	1,500	200	1,070	1,420	180	1,150	1,210	200
ALL MANUFACTURING	2,160	2,050	270	1,990	2,060	280	2,160	1,810	330
Mining	150	100	30	160	100	100	170	230	30
Railroads	20	30	0	10	40	0	10	40	0
Airlines	10	0	0	10	0	0	10	0	0
Other Transportation	20	40	10	20	20	0	10	20	10
Electric Utilities	1,220	540	90	1,490	650	130	1,450	890	150
Gas & Other Utilities	20	30	0	10	20	0	10	20	0
Communications	30	10	0	30	10	0	40	10	10
Trade & Services	170	100	30	100	80	30	110	90	40
ALL NONMANUFACTURING	1,630	850	170	1,830	920	270	1,820	1,310	250
ALL BUSINESS	3,798	2,903	440	3,811	2,973	550	3,977	3,123	580

Table VII (Continued)

	1979			1980			1981		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel.....	440	190	10	430	190	10	370	140	20
Nonferrous Metals.....	120	30	10	130	50	20	120	40	20
Electrical Machinery....	50	150	10	70	130	20	130	140	20
Non-Electrical Machinery	50	50	10	50	50	10	30	70	10
Autos, Trucks & Parts...	160	110	40	240	130	40	200	150	30
Aerospace.....	20	20	10	20	20	10	20	20	10
Fabricated Metals.....	10	50	0	30	40	10	20	30	0
Stone, Clay & Glass.....	200	40	20	250	40	10	130	50	10
Other Durables	150	50	30	170	60	20	100	90	40
TOTAL DURABLES.....	1,200	690	140	1,390	710	150	1,120	730	160
Chemicals.....	230	340	50	260	330	100	330	310	160
Paper & Pulp.....	210	150	60	190	180	90	180	160	110
Rubber & Plastic.....	30	10	0	20	10	10	20	20	10
Petroleum.....	630	500	130	710	660	170	830	710	130
Food & Beverage.....	90	140	30	80	160	20	110	130	30
Textiles.....	40	20	0	50	20	0	20	20	0
Other Nondurables.....	20	30	20	20	30	10	20	20	20
TOTAL NONDURABLES.....	1,260	1,190	300	1,320	1,390	400	1,520	1,370	460
ALL MANUFACTURING.....	2,450	1,880	430	2,710	2,100	540	2,640	2,100	620
Mining.....	190	180	80	170	110	90	140	90	90
Railroads.....	20	40	10	10	40	10	30	20	10
Airlines.....	10	0	0	0	0	0	10	0	0
Other Transportation....	10	20	10	20	10	0	30	20	0
Electric Utilities.....	1,750	1,010	180	1,910	890	190	2,130	810	250
Gas & Other Utilities...	20	20	10	40	20	0	60	30	0
Communications	20	10	0	50	10	0	40	10	0
Trade & Services	140	70	40	130	50	70	50	70	30
ALL NONMANUFACTURING....	2,160	1,350	340	2,340	1,140	360	2,500	1,030	380
ALL BUSINESS.....	4,613	3,229	780	5,051	3,237	910	5,135	3,135	1,000

Table VII (Continued)

	1982			1983			1984		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	320	180	20	200	140	10	230	160	10
Nonferrous Metals	120	40	20	90	20	10	150	30	30
Electrical Machinery	140	130	20	100	120	20	70	90	20
Non-Electrical Machinery	50	60	20	20	70	30	40	110	40
Autos, Trucks & Parts	170	90	20	150	70	20	130	140	30
Aerospace	10	20	10	10	10	10	10	20	10
Fabricated Metals	10	20	0	10	20	10	30	30	10
Stone, Clay & Glass	80	30	10	80	30	10	100	20	10
Other Durables	130	60	20	80	90	20	90	80	20
TOTAL DURABLES	1,030	620	140	740	570	140	850	680	180
Chemicals	310	310	60	260	290	60	220	280	70
Paper & Pulp	180	90	70	200	110	60	260	170	110
Rubber & Plastic	20	10	10	20	10	10	50	10	10
Petroleum	750	700	120	560	780	120	580	570	120
Food & Beverage	90	130	40	110	120	10	90	140	30
Textiles	20	20	0	20	10	0	30	10	10
Other Nondurables	20	30	10	20	30	10	40	30	10
TOTAL NONDURABLES	1,390	1,290	320	1,180	1,350	280	1,260	1,210	350
ALL MANUFACTURING	2,420	1,910	460	1,920	1,920	420	2,110	1,890	530
Mining	170	110	90	110	100	60	90	180	100
Railroads	20	50	10	10	30	0	10	30	0
Airlines	10	0	0	0	0	0	0	0	0
Other Transportation	20	10	0	10	20	0	0	10	0
Electric Utilities	2,310	900	230	1,990	50	230	1,960	900	310
Gas & Other Utilities	60	50	0	40	20	0	30	40	10
Communications	10	10	0	20	0	0	10	0	0
Trade & Services	70	50	50	60	50	60	60	70	80
ALL NONMANUFACTURING	2,670	1,170	380	2,230	980	350	2,170	1,230	510
ALL BUSINESS	5,086	3,080	840	4,155	2,900	760	4,282	3,123	1,040

Table VII (Continued)

	1985			1986		
	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	350	250	10	250	210	10
Nonferrous Metals	130	30	30	130	50	20
Electrical Machinery	60	100	20	70	130	50
Non-Electrical Machinery	30	90	30	20	70	10
Autos, Trucks & Parts	240	190	60	370	110	60
Aerospace	10	20	10	10	20	10
Fabricated Metals	50	30	10	40	40	10
Stone, Clay & Glass	90	30	10	60	30	10
Other Durables	110	100	20	120	110	30
TOTAL DURABLES	1,070	840	200	1,070	770	210
Chemicals	320	320	110	390	480	110
Paper & Pulp	320	170	100	250	150	150
Rubber & Plastic	50	20	10	30	30	20
Petroleum	500	600	140	520	650	110
Food & Beverage	80	140	30	90	130	50
Textiles	20	10	0	20	0	10
Other Nondurables	40	30	10	40	40	10
TOTAL NONDURABLES	1,330	1,290	400	1,330	1,490	460
ALL MANUFACTURING	2,390	2,130	600	2,400	2,270	660
Mining	90	120	110	80	130	40
Railroads	10	30	10	10	20	0
Airlines	0	0	0	0	0	0
Other Transportation	0	10	0	10	30	0
Electric Utilities	1,550	870	370	1,470	650	320
Gas & Other Utilities	30	40	10	20	30	0
Communications	10	0	0	20	0	0
Trade & Services	50	70	90	80	70	110
ALL NONMANUFACTURING	1,750	1,150	590	1,690	930	490
ALL BUSINESS	4,141	3,279	1,190	4,090	3,200	1,160

Table VIII
Historical Pollution Control Expenditures on Air, Water, and Solid Waste
(Percent of total capital spending)

	1973			1974			1975		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	10.4	4.8	0.0	8.7	3.6	0.5	9.4	4.9	0.0
Nonferrous Metals	24.5	1.6	0.8	16.4	3.4	1.1	18.7	3.5	1.7
Electrical Machinery	1.4	1.7	0.3	1.6	1.6	0.0	1.6	1.0	0.3
Non-Electrical Machinery	1.3	1.0	0.3	0.8	0.8	0.2	0.8	0.8	0.2
Autos, Trucks & Parts	3.1	2.3	1.0	1.6	1.2	0.7	1.2	1.5	0.6
Aerospace	2.5	2.5	0.0	1.6	0.8	0.0	1.7	0.8	0.0
Fabricated Metals	2.8	1.7	0.0	3.6	1.0	0.0	3.6	3.1	0.0
Stone, Clay & Glass	8.2	1.3	0.0	11.5	1.2	0.0	11.4	1.8	0.0
Other Durables	4.3	1.3	0.2	2.8	1.4	0.4	3.3	1.8	0.2
TOTAL DURABLES	4.6	1.8	0.4	3.9	1.5	0.3	4.6	2.0	0.3
Chemicals	4.3	5.3	0.5	3.7	4.5	0.5	4.1	6.2	0.4
Paper & Pulp	8.5	6.0	0.5	8.3	4.2	0.3	8.9	6.8	0.7
Rubber & Plastic	1.3	1.3	0.0	1.9	1.2	0.0	2.5	1.7	0.0
Petroleum	6.7	3.9	1.1	5.5	4.0	1.1	7.4	5.3	0.7
Food & Beverage	2.4	3.5	0.5	1.9	3.5	0.5	2.3	4.1	0.5
Textiles	1.0	2.9	0.0	1.9	1.9	0.0	3.5	2.3	0.0
Other Nondurables	0.8	0.4	0.0	1.5	0.4	0.4	1.1	0.7	0.4
TOTAL NONDURABLES	4.1	3.6	0.6	4.0	3.5	0.6	5.0	4.8	0.6
ALL MANUFACTURING	4.4	2.6	0.4	4.0	2.5	0.5	4.8	3.5	0.4
Mining	1.8	2.1	0.3	1.5	1.3	0.2	1.0	1.0	0.3
Railroads	0.3	0.7	0.3	0.6	0.6	0.0	0.5	2.1	0.0
Airlines	0.5	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
Other Transportation	0.3	0.3	0.0	0.5	0.8	0.3	0.4	0.7	0.2
Electric Utilities	5.4	2.7	0.5	5.6	2.6	0.5	6.1	2.4	0.5
Gas & Other Utilities	0.3	0.7	0.0	0.6	0.6	0.0	0.3	0.9	0.0
Communications	0.3	0.0	0.0	0.2	0.0	0.0	0.2	0.1	0.0
Trade & Services	0.3	0.2	0.1	0.2	0.1	0.1	0.3	0.2	0.1
ALL NONMANUFACTURING	1.1	0.6	0.1	1.2	0.6	0.1	1.2	0.6	0.1
ALL BUSINESS	2.1	1.2	0.2	2.1	1.2	0.3	2.4	1.5	0.2

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Table VIII (Continued)

	1976			1977			1978		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	9.9	6.4	0.0	10.8	7.0	0.3	11.9	5.4	0.4
Nonferrous Metals	17.0	3.5	0.7	12.4	4.6	0.8	8.9	2.1	0.7
Electrical Machinery	1.1	1.1	0.0	0.9	1.1	0.2	0.7	2.0	0.3
Non-Electrical Machinery	0.7	0.6	0.2	0.9	0.8	0.0	0.7	0.5	0.1
Autos, Trucks & Parts	0.8	1.4	0.8	0.9	1.2	0.7	1.4	1.1	0.6
Aerospace	2.0	1.0	0.0	0.9	0.9	0.0	0.6	0.6	0.6
Fabricated Metals	1.8	1.4	0.0	1.6	2.0	0.0	0.7	0.7	0.0
Stone, Clay & Glass	5.8	1.6	0.5	4.8	1.7	0.4	4.8	2.5	0.6
Other Durables	3.3	2.1	0.2	2.2	1.9	0.3	2.8	1.1	0.1
TOTAL DURABLES	3.6	2.0	0.3	2.8	2.0	0.3	2.6	1.5	0.3
Chemicals	4.5	6.6	0.7	4.1	6.5	0.7	3.5	4.1	0.5
Paper & Pulp	5.7	8.4	0.3	3.7	6.0	0.9	3.7	4.2	0.8
Rubber & Plastic	1.5	1.5	0.0	2.3	1.1	0.6	1.7	0.4	0.0
Petroleum	4.9	5.0	1.1	4.0	4.2	0.7	4.0	3.9	0.7
Food & Beverage	2.0	3.5	0.4	1.7	3.1	0.3	2.0	2.4	0.3
Textiles	1.0	3.1	0.0	1.7	1.7	0.0	6.1	1.5	0.8
Other Nondurables	0.7	0.3	0.0	0.6	0.3	0.0	0.2	0.9	0.2
TOTAL NONDURABLES	3.8	4.8	0.6	3.1	4.1	0.5	2.9	3.1	0.5
ALL MANUFACTURING	3.7	3.5	0.5	2.9	3.1	0.4	2.7	2.3	0.4
Mining	2.0	1.3	0.4	1.6	1.0	1.0	1.5	2.0	0.3
Railroads	0.5	0.7	0.0	0.2	0.9	0.0	0.2	0.8	0.0
Airlines	0.9	0.0	0.0	0.5	0.0	0.0	0.3	0.0	0.0
Other Transportation	0.3	0.7	0.2	0.4	0.4	0.0	0.2	0.4	0.2
Electric Utilities	6.3	2.8	0.5	6.4	2.8	0.6	5.5	3.4	0.6
Gas & Other Utilities	0.6	0.8	0.0	0.2	0.4	0.0	0.2	0.4	0.0
Communications	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Trade & Services	0.3	0.2	0.1	0.2	0.1	0.0	0.1	0.1	0.1
ALL NONMANUFACTURING	1.3	0.7	0.1	1.3	0.7	0.2	1.1	0.8	0.1
ALL BUSINESS	2.1	1.6	0.2	1.8	1.4	0.3	1.6	1.3	0.2

Table VIII (Continued)

	1979			1980			1981		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	13.7	5.9	0.3	12.5	5.5	0.3	10.6	4.0	0.6
Nonferrous Metals	7.3	1.8	0.6	6.1	2.3	0.9	4.8	1.6	0.8
Electrical Machinery	0.7	2.0	0.1	0.7	1.3	0.2	1.2	1.3	0.2
Non-Electrical Machinery	0.5	0.5	0.1	0.4	0.4	0.1	0.2	0.5	0.1
Autos, Trucks & Parts	1.9	1.3	0.5	2.7	1.4	0.4	2.0	1.5	0.3
Aerospace	0.7	0.7	0.4	0.6	0.6	0.3	0.6	0.6	0.3
Fabricated Metals	0.3	1.6	0.0	0.9	1.2	0.3	0.6	0.8	0.0
Stone, Clay & Glass	5.0	1.0	0.5	6.3	1.0	0.3	3.8	1.5	0.3
Other Durables	2.0	0.7	0.4	2.0	0.7	0.2	1.1	1.0	0.4
TOTAL DURABLES	2.5	1.4	0.3	2.5	1.3	0.3	1.9	1.2	0.3
Chemicals	2.3	3.5	0.5	2.2	2.8	0.9	2.5	2.4	1.2
Paper & Pulp	4.0	2.9	1.1	2.9	2.8	1.4	2.9	2.6	1.8
Rubber & Plastic	1.2	0.4	0.0	1.0	0.5	0.5	0.9	0.9	0.5
Petroleum	4.1	3.3	0.9	3.6	3.4	0.9	3.2	2.7	0.5
Food & Beverage	1.2	1.9	0.4	1.0	2.0	0.2	1.2	1.4	0.3
Textiles	2.8	1.4	0.0	3.3	1.3	0.0	1.2	1.2	0.0
Other Nondurables	0.3	0.5	0.3	0.3	0.4	0.1	0.2	0.2	0.2
TOTAL NONDURABLES	2.7	2.5	0.6	2.3	2.4	0.7	2.3	2.1	0.7
ALL MANUFACTURING	2.6	2.0	0.4	2.4	1.9	0.5	2.1	1.7	0.5
Mining	1.5	1.4	0.6	1.1	0.7	0.6	0.7	0.4	0.4
Railroads	0.3	0.6	0.2	0.1	0.6	0.1	0.5	0.3	0.2
Airlines	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Other Transportation	0.2	0.4	0.2	0.4	0.2	0.0	0.6	0.4	0.0
Electric Utilities	6.0	3.5	0.6	6.4	3.0	0.6	6.7	2.5	0.8
Gas & Other Utilities	0.3	0.3	0.2	0.5	0.3	0.0	0.6	0.3	0.0
Communications	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Trade & Services	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0
ALL NONMANUFACTURING	1.1	0.7	0.2	1.2	0.6	0.2	1.1	0.5	0.2
ALL BUSINESS	1.6	1.1	0.3	1.6	1.0	0.3	1.5	0.9	0.3

Table VIII (Continued)

	1982			1983			1984		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel.....	8.5	4.8	0.5	6.2	4.3	0.3	6.5	4.5	0.3
Nonferrous Metals.....	6.3	2.1	1.1	5.2	1.2	0.6	7.0	1.4	1.4
Electrical Machinery....	1.3	1.2	0.2	0.9	1.1	0.2	0.5	0.6	0.1
Non-Electrical Machinery	0.4	0.4	0.1	0.1	0.5	0.2	0.3	0.7	0.3
Autos, Trucks & Parts...	2.2	1.2	0.3	2.1	1.0	0.3	1.2	1.3	0.3
Aerospace.....	0.3	0.6	0.3	0.3	0.3	0.3	0.3	0.6	0.3
Fabricated Metals.....	0.3	0.6	0.0	0.4	0.7	0.4	0.9	0.9	0.3
Stone, Clay & Glass.....	2.8	0.7	0.3	2.9	1.1	0.4	3.2	0.6	0.3
Other Durables	1.6	0.7	0.2	1.1	1.2	0.3	1.0	0.9	0.2
TOTAL DURABLES.....	1.9	1.1	0.3	1.4	1.1	0.3	1.3	1.0	0.3
Chemicals.....	2.4	2.4	0.5	2.0	2.2	0.5	1.4	1.8	0.5
Paper & Pulp.....	3.2	1.6	1.3	3.4	1.9	1.0	3.6	2.4	1.5
Rubber & Plastic.....	0.9	0.5	0.5	0.8	0.4	0.4	1.6	0.3	0.3
Petroleum.....	2.8	2.7	0.5	2.4	3.4	0.5	2.3	2.2	0.5
Food & Beverage.....	1.0	1.5	0.5	1.4	1.5	0.1	1.0	1.6	0.3
Textiles.....	1.4	1.4	0.0	1.3	0.6	0.0	1.6	0.5	0.5
Other Nondurables.....	0.2	0.4	0.1	0.2	0.3	0.1	0.4	0.3	0.1
TOTAL NONDURABLES.....	2.1	2.0	0.5	1.9	2.1	0.4	1.7	1.7	0.5
ALL MANUFACTURING.....	2.0	1.6	0.4	1.7	1.7	0.4	1.5	1.4	0.4
Mining.....	0.8	0.5	0.4	0.7	0.7	0.4	0.5	1.1	0.6
Railroads.....	0.4	0.9	0.2	0.2	0.6	0.0	0.1	0.4	0.0
Airlines.....	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Transportation....	0.4	0.2	0.0	0.2	0.4	0.0	0.0	0.2	0.0
Electric Utilities.....	6.4	2.5	0.6	5.3	2.0	0.6	5.3	2.4	0.8
Gas & Other Utilities...	0.6	0.5	0.0	0.5	0.3	0.0	0.3	0.4	0.1
Communications	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Trade & Services	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1
ALL NONMANUFACTURING....	1.2	0.5	0.2	1.0	0.4	0.2	0.8	0.5	0.2
ALL BUSINESS.....	1.5	0.9	0.2	1.2	0.8	0.2	1.1	0.8	0.3

Table VIII (Continued)

	1985			1986		
	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel.....	8.5	6.1	0.2	7.5	6.3	0.3
Nonferrous Metals.....	6.9	1.6	1.6	6.7	2.6	1.0
Electrical Machinery....	0.4	0.6	0.1	0.5	0.9	0.4
Non-Electrical Machinery	0.2	0.6	0.2	0.1	0.5	0.1
Autos, Trucks & Parts...	1.6	1.3	0.4	2.7	0.8	0.4
Aerospace.....	0.3	0.6	0.3	0.3	0.5	0.3
Fabricated Metals.....	1.4	0.8	0.3	1.0	1.0	0.2
Stone, Clay & Glass.....	2.6	0.9	0.3	1.9	1.0	0.3
Other Durables	1.0	0.9	0.2	1.1	1.0	0.3
TOTAL DURABLES.....	1.5	1.1	0.3	1.5	1.1	0.3
Chemicals.....	1.9	1.9	0.7	2.3	2.9	0.7
Paper & Pulp.....	3.7	2.0	1.2	2.9	1.7	1.7
Rubber & Plastic.....	1.3	0.5	0.3	0.8	0.8	0.5
Petroleum.....	1.9	2.2	0.5	2.9	3.6	0.6
Food & Beverage.....	0.8	1.4	0.3	0.8	1.2	0.5
Textiles.....	1.1	0.6	0.0	1.2	0.0	0.6
Other Nondurables.....	0.3	0.2	0.1	0.3	0.3	0.1
TOTAL NONDURABLES.....	1.7	1.6	0.5	1.8	2.0	0.6
ALL MANUFACTURING.....	1.6	1.4	0.4	1.7	1.6	0.5
Mining.....	0.6	0.8	0.7	0.7	1.2	0.4
Railroads.....	0.1	0.4	0.1	0.2	0.3	0.0
Airlines.....	0.0	0.0	0.0	0.0	0.0	0.0
Other Transportation....	0.0	0.2	0.0	0.2	0.5	0.0
Electric Utilities.....	4.3	2.4	1.0	4.3	1.9	0.9
Gas & Other Utilities...	0.2	0.3	0.1	0.2	0.2	0.0
Communications	0.0	0.0	0.0	0.0	0.0	0.0
Trade & Services	0.0	0.0	0.1	0.1	0.0	0.1
ALL NONMANUFACTURING....	0.6	0.4	0.2	0.6	0.3	0.2
ALL BUSINESS.....	1.0	0.8	0.3	1.0	0.7	0.3